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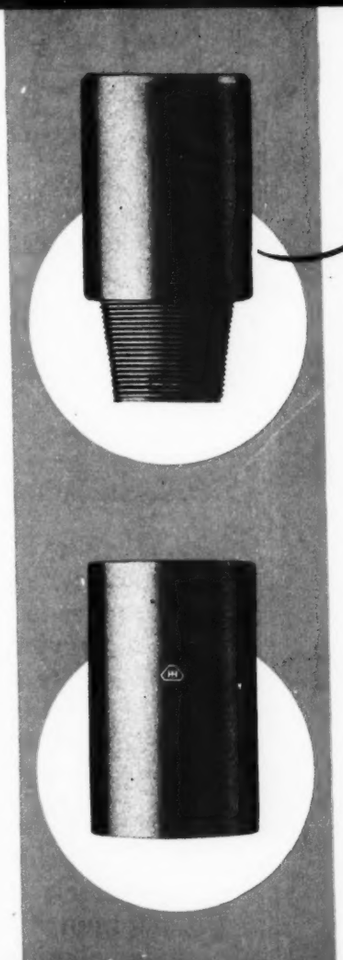

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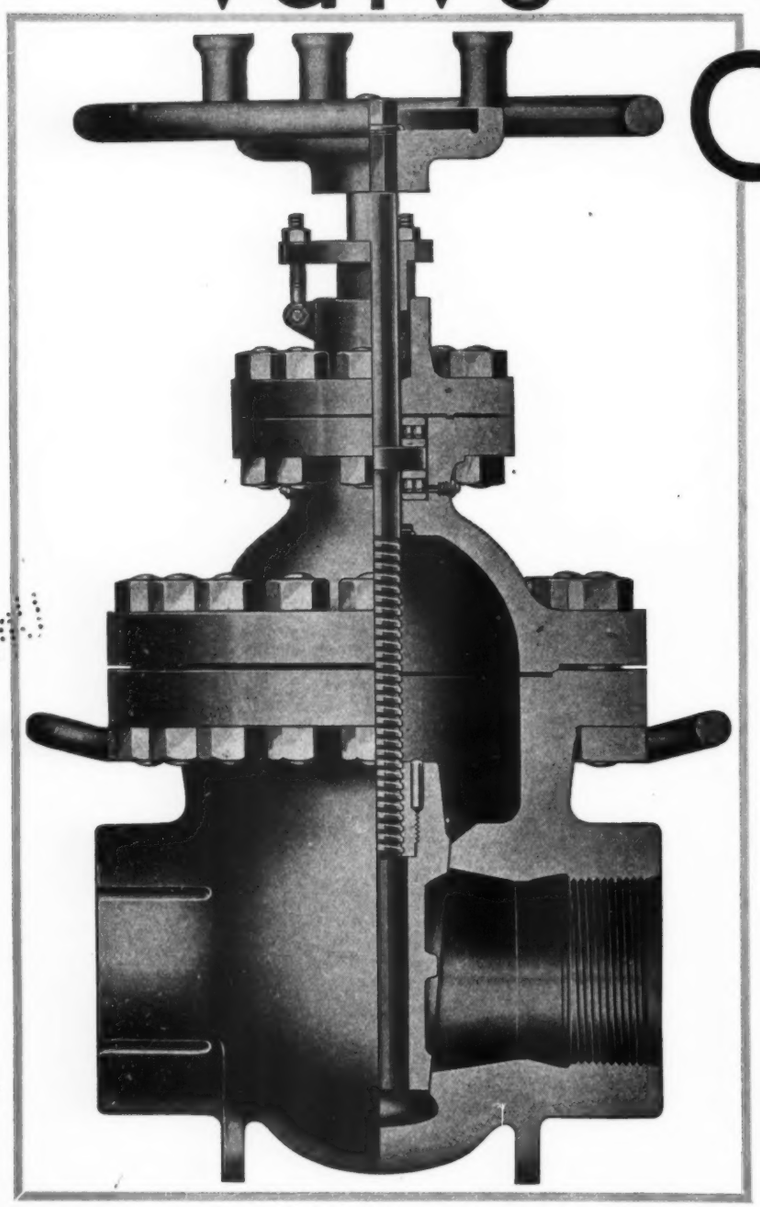

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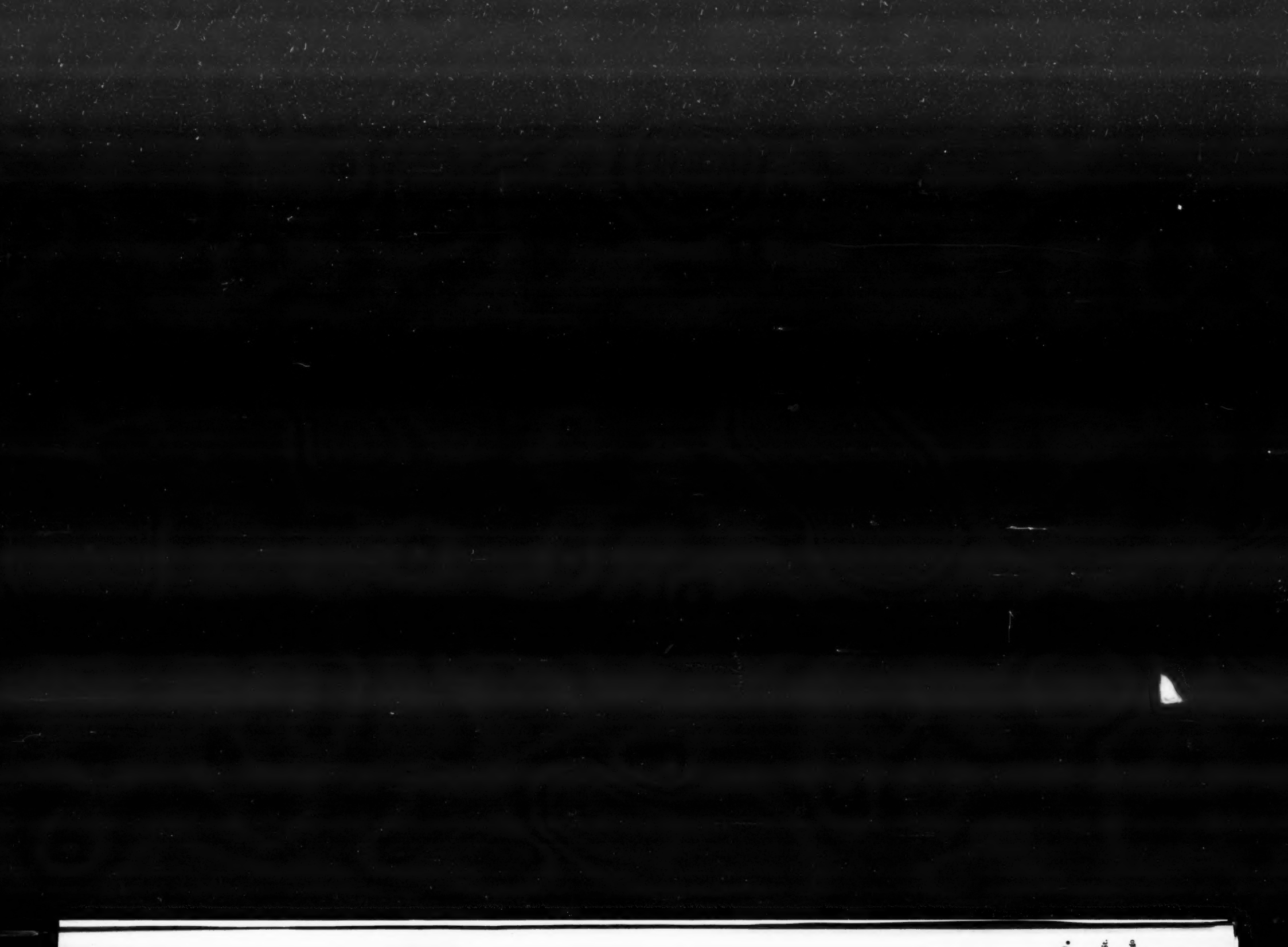

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Oklahoma City and Texas Big Factors

Highest production in 1930, week ending Feb. 22, average daily output 2,690,096 bbls. Peak of U. S. production, week ending Aug. 24, 1929, average 2,975,435 bbls.

Immediate Future of Industry Dependent Largely on Continuance of Present Proration and New Development

By Andrew M. Rowley

Lowest daily average crude oil production in United States during 1930 was for week ending Dec. 27 with average output of 2,144,074 bbls.

Quite often in recent months it has been felt the statement "Just the same as last week" would cover adequately the crude oil situation. That condition certainly obtains as this is written. While there is more agitation throughout the United States affecting the petroleum industry than there has been in years, the immediate future of the industry depends largely on the decision on the petition of some operators in the Oklahoma City Pool to increase the allowable production there and to what extent development in the recently discovered prolific areas of East Texas is restricted and production there curtailed.

After a week's adjournment, hearing on the Oklahoma City petition was resumed on Tuesday of this week. The preponderance of testimony presented at the hearing appears to bear out fully the contention of those favoring continuance of the present production limit. However, there seems to be some doubt as to what decision the State Corporation Commission will make. Upon this decision depends to a great extent, it is felt, what Texas will do in the matter of curtailing output of the areas being developed in East Texas. It is reasonable to assume any lifting of the lid in Oklahoma will be followed immediately by an increase in allowable limits in other fields.

The logical thing for the industry to do now is to continue strict curtailment, both of crude oil production and runs to refineries, until April 1 at least. Progress is being made by refiners in holding down stocks of gasoline but further curtailment is needed upon their part if the objective of 40,000,000 barrels of gasoline in storage April 1 is to be achieved. That total already has been exceeded. Especial effort should be made by the refining industry at this time to hold the manufacture of gasoline strictly to immediate requirements without any further addition to storage.

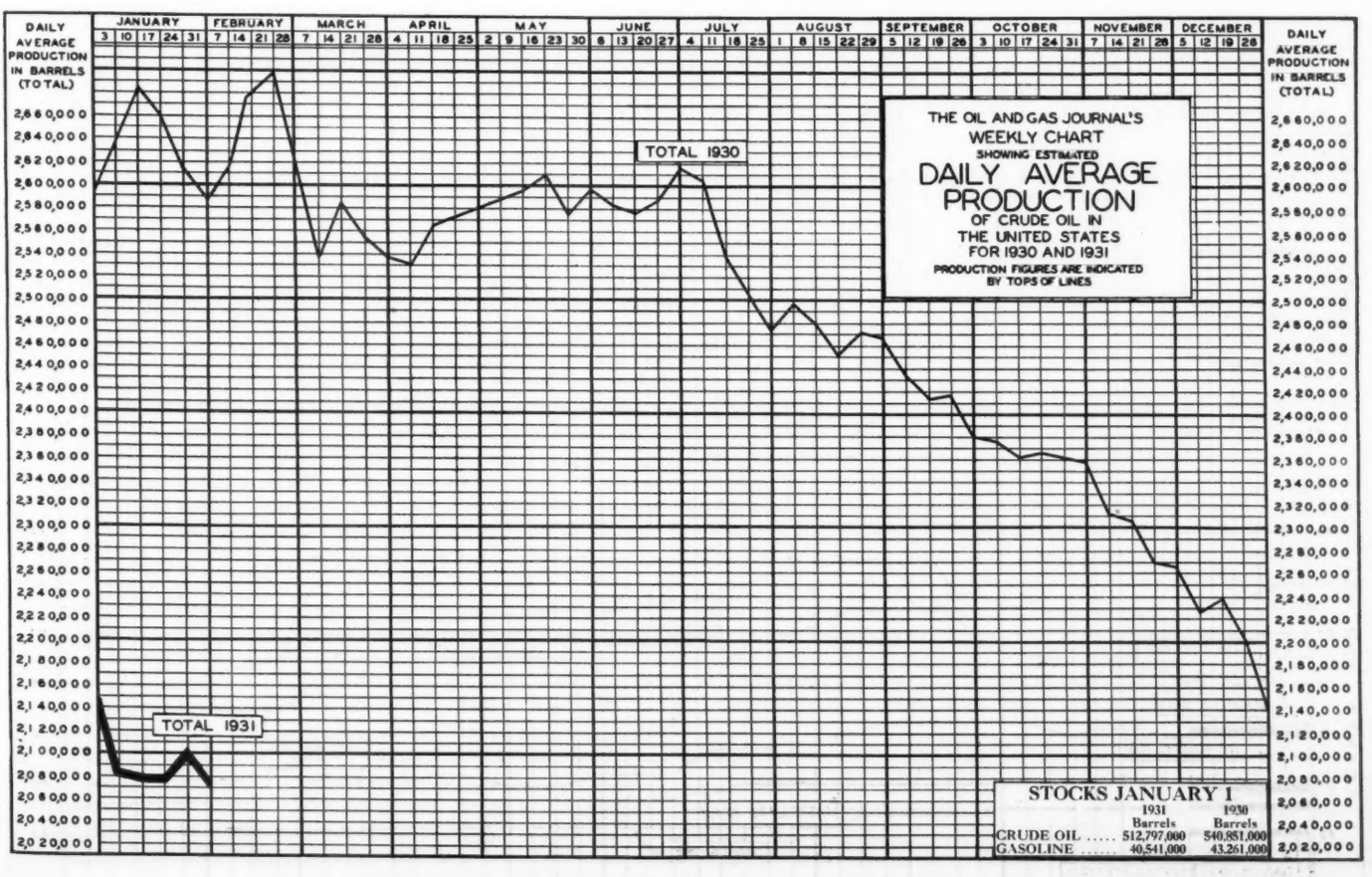
Action should be taken at once by the industry in Texas to prevent the newly discovered areas in East Texas from flooding the market with cheap crude, with resultant distress conditions in all other sections.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of crude oil in the United States for week ended January 31 and a comparison with the previous week follows:

	Jan. 31	Jan. 24
Oklahoma—		
Oklahoma City	67,310	84,830
Seminole-St. Louis	151,435	155,050
Remainder of State	225,065	226,660
Total Oklahoma	443,810	466,540
West Texas—		
Hendricks	51,514	49,160
Yates	94,549	95,691
Remainder	104,515	100,006
Total West Texas	250,578	244,857
North Louisiana	41,890	40,390
Arkansas	50,525	50,665
North Central Texas	87,447	87,243
Texas Panhandle	59,491	58,405
East Central Texas	44,347	45,243
Kansas	104,220	106,945
Total Mid-Continent area	1,082,308	1,100,288
Gulf Coast	179,768	180,558
Southwest Texas	87,857	84,906
Eastern	108,000	108,000
Rocky Mountain area	95,647	98,860
California—		
Santa Fe Springs	71,250	71,250
Long Beach	90,000	92,000
Playa Del Rey	35,750	36,000
Elwood	31,000	32,750
Ventura Avenue	43,000	43,500
Kettleman Hills	25,500	21,500
Remainder of State	229,000	235,000
Total California	525,500	532,000
Total United States	2,079,080	2,104,612

→ Decrease 25,532 Bbls. Daily ←



Refinery Market in Oklahoma Is Dull

Little Spot Trading as Buyers Await Developments in Crude Oil Situation. Kerosene Stocks 40 Per Cent Less

By C. O. Willson

With spot trading unusually dull in several products the start of a new month in the Oklahoma (Group 3) refined market was not encouraging from the viewpoint of the sellers. The same situation was apparent in other Mid-Continent areas.

The hoped for strength which many sellers had anticipated failed to develop and on Monday and Tuesday weakness was apparent and it appeared doubtful if refiners could maintain the advances of early January. With the end of January, a few refiners were in need of additional orders on gasoline and buying was not active the first two trading days of the new month. U. S. Motor gasoline was available as low as 4⅛ cents either for prompt shipment or delivery over the month. The price weakness was also reflected in the higher gravities.

An encouraging development was the purchase of approximately 200 cars of 400 endpoint gasoline from North Texas refineries by The Texas Company. The company had been making inquiries for this grade gasoline since early January and a small order had previously been placed with Oklahoma refiners. The business placed with North Texas refiners should aid the market situation in inland Texas for February. The North Texas refiners have enjoyed a substantial export business from month to month but no orders had been placed for February delivery, the first of the week. Previous to The Texas Company purchase it was feared that the lack of export orders would result in distress sales on the domestic market at low prices.

Natural gasolines were holding to the January advances on Monday and Tuesday. Manufacturers believe that February buying will be comparable to that of January so that prices can at least be maintained at their present levels.

Trading in other products was slow, the dullness extending from the lowest gravity grades of fuel oil to the highly refined and compounded grades of motor oils. Part of this dullness can be explained as seasonal but in addition there was a "waiting" attitude on the part of many buyers who apparently feel that still lower prices are assured despite the fact that the general level of quotations is at the lowest point since the post war period.

Most of the buyers and sellers continue to center their attention on the crude oil situation realizing that so far as prices on refined products are concerned no important changes can be expected either up or down until the many conflicting angles in regard to supplies of crude oil have been ironed out. The testing in court of the legal authority of the Texas Railroad Commission in regard to enforcing curtailment agreements and the proposed increase in the allowable production in the Oklahoma City area are the factors of immediate importance in the refined market. The final decision in the Texas case now being tried will determine whether or not there is to be any restriction in the new East Texas devel-

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REFINED MARKET BAROMETER

A better tone in the refined market was reported in the East Coast states but otherwise few changes in market conditions were apparent. In some areas, the uncertainty regarding the crude oil situation has stopped any recovery in refinery prices and until this condition changes little improvement is anticipated. Exceptionally mild weather east of the Rocky Mountains has increased gasoline consumption but not sufficient to be a general market factor. The weather is also held responsible for a slow movement of furnace oils and refinery prices are lower in some areas. The kerosene situation was mixed, some refiners having more sales while other reports indicated continued dullness. Fuel oil and gas oil prices are generally firm. A better tone was reported in the Eastern wax market but otherwise conditions are unchanged. Lubricants unchanged.

East Coast—Better feeling in regard to practically all refined products. Gasoline movement steady at firm prices. Less price cutting in kerosene. Some grades of wax fractionally higher. Price shading in gas oil continues. Better demand for Diesel oil. Bunker oil steady.

Mid-Continent—Scattered weakness in refinery gasoline apparent with slow spot demand. Kerosene more active. Furnace oils weak. Fuel oil and gas oil prices unchanged Natural gasoline steady. Lubricants and wax slow.

Pennsylvania—Lower prices on some grades of high gravity gasoline. Kerosene slow. Prices on steam refined stocks, bright stocks and neutral oils steady although demand not active.

Chicago—Fair contract demand for gasoline but spot demand light. Kerosene demand light. Heavy fuels quiet. Furnace oil movement light due to mild weather.

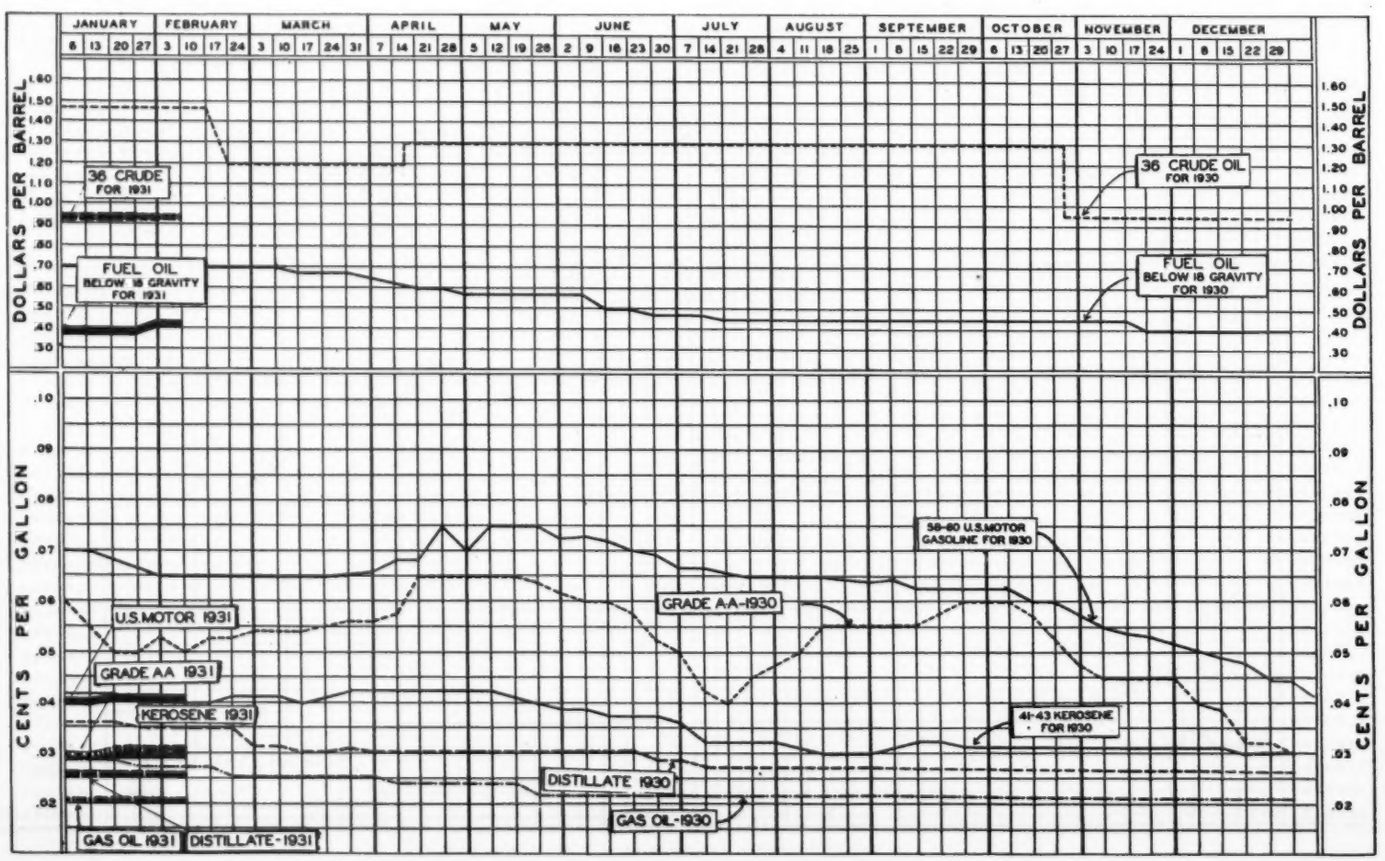
Gulf Coast—Market marking time. Slow demand for pale and red neutrals.

California—Prices unchanged. Natural gasolines weak.

MID-CONTINENT REFINERY OPERATIONS, DECEMBER, 1930-1929.
(Data in barrels)

	Gasoline production		Gasoline stocks End of month		Kerosene production		Kerosene stocks End of month		Fuel oil and gas oil Production		Fuel oil and gas oil Stocks end of month		Crude oil runs to stills (daily)	
	Dec., 1930	Dec., 1929	Dec., 1930	Dec., 1929	Dec., 1930	Dec., 1929	Dec., 1930	Dec., 1929	Dec., 1930	Dec., 1929	Dec., 1930	Dec., 1929	Dec., 1930	Dec., 1929
Okla., Kans., Mo. ..	4,870,000	5,227,000	3,370,000	4,123,000	563,000	689,000	739,000	1,002,000	2,449,000	3,282,000	4,967,000	4,033,000	263,600	308,322
Inland Texas	2,275,000	1,971,000	1,812,000	1,335,000	175,000	227,000	111,000	157,000	2,355,000	2,294,000	3,368,000	3,925,000	149,900	141,710
North La.-Ark.	551,000	684,000	225,000	307,000	47,000	69,000	12,000	55,000	745,000	1,061,000	698,000	879,000	41,510	59,290
Total	7,696,000	7,882,000	5,407,000	5,765,000	785,000	985,000	862,000	1,214,000	5,549,000	6,637,000	9,033,000	8,837,000	455,010	509,322

Data compiled from Bureau of Mines report.



Date Set for Vote on Oil Embargo

President Stewart of Pan American Tells Senate Committee Industry Can Solve Problems If Not Intimidated

By Charles E. Kern
Staff Correspondent, Southwest Texas Fields

WASHINGTON, Feb. 3.—A recommendation that the antitrust laws be repealed to permit the oil industry to solve the overproduction problem was given Monday to the Senate Commerce Committee by R. G. Stewart, president of the Pan American Petroleum and Transport Co.

At the conclusion of the hearing today the committee agreed to Senator Johnson's motion that on next Thursday the committee shall vote to dispose of the embargo and tariff bills so that there should be no delay in pressing legislation.

Mr. Stewart, with several other witnesses, opposed either a tariff or embargo on oil.

Mr. Stewart said the price of gasoline is influenced by the price of crude oil, gasoline fluctuating 1 cent a gallon on every 25 cents a barrel on crude.

"I wonder whether people understand what it will mean to cut off imports of oil, with an advance of 4 cents a gallon on gasoline, costing American consumers $664,000,000," he he said.

He declared Congress could not give an opportunity to people to be heard on the plan for an embargo in the short time given for the passage of this bill.

Give Industry a Chance

Pressed by Chairman Johnson for his opinion as to what could be done to relieve the oil industry from its present difficulties, Mr. Stewart said Congress could repeal the Sherman Act and the Clayton Act to permit economic management of the affairs of the oil companies.

"Every time the executives of the oil companies meet and begin a discussion of the industry, our lawyers warn us that we must stop or go to jail," he said. "If you will just take this threat from above our heads, I think we can take care of the industry ourselves without help from Congress."

Mr. Stewart continued:

"If you give the oil industry the right to sit around a table and talk the situation over without fear of going to jail, I will guarantee it will have brains enough to work out the problem."

He said he realized there were two service stations where there should be only one, and a surplus of production and refining facilities, but the industry could not work out a solution under present conditions, because every time it started discussing the subject its lawyers warned of the antitrust laws.

Mr. Stewart said the Capper bill proposing to limit importation of crude oil to 16,000,000 bbls. annually and place an embargo on refined products would cost the American people $664,000,000 a year.

It would raise the price of crude oil on the Atlantic seaboard $1 a barrel, which would mean an increase of 4 cents a gallon on gas, he added.

"That makes me believe the Capper bill would be more effective than I had thought," Chairman Johnson said.

Limitation on Fuel Oil

Mr. Stewart said even more serious than the increased price of gasoline would be the limitation on fuel oil in the United States.

The consumption of fuel oil in these states, he said, is 120,000,000 barrels a year, of which 70,000,000 is imported. It would not be possible for some time for the domestic oil industry to supply this deficit," he said. "Assuming it could be supplied, it would be at a tremendous added cost."

He estimated the additional price at New York would be 45 or 50 cents a barrel because of added transportation costs.

Mr. Stewart insisted that there has been an actual decrease in the importation of Venezuelan oils. This reduction has been equal, he said, to the restriction of American production. He said his figures were from the Bureau of Mines and figures submitted by those pressing for an embargo were not correct so far as they showed otherwise. He said American capital had been invited to make foreign investments in oil properties and a vast amount of money had gone into the foreign oil fields. If the oil from the South American fields should be cut off, the Atlantic Coast could not be supplied with fuel oil at least for from 6 to 12 months because of the lack of transportation and in addition to higher prices many industries would have to close down until they converted their oil burners into coal burners. There would be available only 15,000,000 bbls. of fuel oil to take the place of 70,000,000 bbls. shut out by the embargo There had been an actual decrease in imports of crude and its equivalent from 108,000,000 bbls. in 1929 to 105,000,000 in 1930 while there had been an increase in consumption at the same time.

Mr. Stewart declared he spoke his own views only and not for any other company.

Price of Crude and Gasoline

Elaborating upon his assertion that there is a definite relation between the price of crude petroleum and its chief refined product, gasoline, Mr. Stewart told the committee that in all probability

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Hearings Before Senate Committee

Witnesses Closely Questioned by Senators During Testimony Supporting Bill for Embargo on Imports

By Charles E. Kern
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Jan. 31.—Representatives of the oil conference seeking an embargo on the importation of petroleum began to present their claims for this legislation at a hearing before the Senate committee on commerce presided over by Senator Hiram W. Johnson of California.

In the absence of Wirt Franklin the case of the oil men was presented by Orville Bullington of Wichita Falls, Tex., who presented a statement indicating the grounds upon which the independent petroleum producers base their request for the limitation of foreign oil imports and then presented testimony selected from the 150 delegates attending the governors' oil relief conference.

"The time is short to have any relief extended to the oil industry in this session of Congress," said the California senator, adding, "and the outcome of this effort for legislation is doubtful in any event."

Both Senator Elmer Thomas (Democrat) of Oklahoma and Samuel Shortridge (Republican) of California were present as were Senators Arthur Capper (Republican) of Kansas, Harry B. Hawes (Democrat) of St. Louis, Mo., Gerald P. Nye (Republican) of North Dakota, and Arthur H. Vandenburg (Republican) of Michigan. Senator-elect Thomas P. Gore (Democrat), Oklahoma, who is guiding the efforts of the oil men to secure an embargo, was invited by the chairman to join the group of senators at the committee table.

E. B. Reeser, president of the American Petroleum Institute, had recently visited the city and been in conference with both President Hoover and Secretary Lamont but could not stay over for the hearing.

Mr. Bullington's Testimony

Senator Shortridge, referring to his bill for an import duty on oil, said he was ready to substantiate his contention that he was proceding constitutionally in asking the Senate to initiate a tariff measure because the purpose of that measure was to regulate commerce between the United States and foreign countries in petroleum, etc. Mr. Bullington described himself as an independent oil producer and went on to say that after the dissolution decree separating the Standard Oil units, the independents thought they could go back to the industry and in the past 10 or 12 years they had built up a large independent industry but the larger companies, developing concessions in Latin America, especially Mexico, Colombia and Venezuela, had gradually increased the importation of oil to this country and had used that imported oil as a club against these independents. It was the independent, he said, who took the hazard of wildcat wells, but when he obtained his production he was met by a flood of oil imported from foreign countries.

"We prefer a limitation on imports," said Mr. Bullington, "simply because we feel it is impossible to get tariff legislation in this Congress or maybe in any Congress. We ask only that imports shall be limited as we have had to limit our production by proration. All of these fields in South America are flush fields. We are not asking to have them prorated or restricted to the extent that we are restricted in our production.

"Although domestic producers of oil are restricting the output of their wells to as low as 10 per cent of their capacity, and in the case of the largest known flush field to 1½ per cent, we are only asking the Congress to limit and restrict foreign imports to 16,000,000 bbls., which is approximately 20 per cent of the amount imported in 1928, or a little less than 15 per cent of the amount imported during the calendar years 1929 and 1930, respectively.

"The possibility of unlimited importation of petroleum and its refined products into our country makes it well nigh impossible for the purchasing companies not engaged in importing oil to safely pay the intrinsic value of domestic oil. They cannot afford to pay more for domestic oil than the price at which the importing companies can deliver oil into our domestic markets at a profit. And there can be no recovery in the price of domestic crude so long as it is possible for the importers to flood our domestic market with foreign oil at will. These foreign importers can break down and destroy any domestic price which may be established by the purchasing companies not engaged in importation.

"The question may well be asked, if oil imports be restricted, what will its effect be upon the consumer of gasoline? We can only judge the future by the past. In February, 1926, the average price of gasoline at the filling stations in 52 representative cities in the United States was 18.09 cents per gallon. The average price of crude oil of 36 gravity was $2.04 per barrel. In February, 1929, in the same 52 representative cities, the average price of gasoline had actually increased to 18.39 cents per gallon, and the average price of crude oil of 36 gravity had decreased to $1.20 per barrel. In other words, a reduction in the price of crude oil of 84 cents per barrel resulted in the raise in price of gasoline of three-tenths of 1 cent per gallon. The price of gasoline to the consumer has never fluctuated in proportion to the price of crude oil, yet the consumer pays practically the same price for gasoline.

"It is safe to say that a limitation upon imports to the United States would have little or no effect upon the price of gasoline to the consumer. On the other hand, it is apparent that the elimination of the independent producer and refiner will result in materially increasing the price to the consumer."

The final statement of Mr. Bullington provoked a great many questions by senators who could not accept the statement that there would be no increase in the price of gasoline, although it was acknowledged that the purpose of placing an embargo on the importation of crude oil in part and an absolute embargo on the importation of gasoline was for the purpose of obtaining a higher market by the oil producers for their product. Each time that matter was referred to, Mr. Bullington insisted he did not know just how it was worked out but he was positive there was no relation between the price of gasoline or of lubricating oil and the price of crude oil. He knew that history had failed to show any such relationship between the price of crude and refined oils and he was confident that the same conditions would be experienced in the future. When Pennsylvania oil sold at $4 a barrel, lubricating oil sold at the same price it sells today.

Price of Gasoline

Senator Johnson wanted to know the relation between the wholesale and retail price of gasoline.

Mr. Bullington: "Very little. They have two kinds of prices. The little filling station buys from the tank wagon on a basis of 3 cents profit including loss by evaporation, but the filling stations of the large oil companies get their gasoline on a basis of a tank car price and there is a wide margin between the tank car price and the tank wagon price. In other words, the big companies supply their gasoline pumps at wholesale prices and they compete with the independents who have only a 3-cent margin. The small men do not handle sufficiently large volumes of gasoline to permit them to purchase to advantage."

Senator Vandenburg asked the witness if the independent did not face a condition that is virtually a price control situation.

Mr. Bullington: "I do not say price control but the independent refiner is out

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All Roads Seem to Lead to East Texas

Oil Men From Surrounding Fields and States Taking Part in Big Boom. Extensive Development Is Forecast

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Feb. 2.—"I believe this is the biggest oil field I ever saw in the making, and it has not yet been scratched," remarked Harry F. Sinclair, chairman of the board of the Sinclair Consolidated Oil Corp., when he visited the Arkansas Fuel Oil Co., Farrell and others' No. 1 Lathrop, the discovery well in the Gregg County on January 29, while making an inspection trip with a party of company officials over the East Central Texas district.

Independent operators and companies alike have come to the same conclusion—that the newly opened areas in Rusk and Gregg Counties are potentially the largest fields in existence, and all that remains to prove up one far reaching field is the drilling and proving the intervening acreage between the Joiner Pool on the south in Rusk County, the Bateman Pool near Kilgore in the northwestern corner of the same county and on up to the Farrell-Lathrop discovery well northwest of Longview. This field, if proven, will extend over approximately 23 miles, and may again be extended by the bringing in of another well being drilled by M. S. (Mamie) Hammond and others on the J. M. Hamby farm in the Martin Lant Survey, 4½ miles northeast of the Farrell-Lathrop discovery. This well is now drilling below 2,900 feet correlating favorably with the discovery well.

Although many of the companies were slow to enter the new producing areas, practically all have finally purchased protection acreage wherever they could buy advantageously. However, a few majors are staying out of this part of the basin due to the fact that the field appears so huge, that much of it may be produced wide-open, and that oil may go to 25 cents per barrel. They believe investments made in the areas would not pay any profits because of such conditions which they feel are bound to happen on account of the three recent discoveries.

The Sinclair Refining Co. closed a deal with some operators in the Joiner Pool for 90,000 bbls. of crude and has been loading it out on tank cars at Friar Switch to its refinery at Houston. It is reported that the company is also doubling the capacity of its refinery at Houston, which means that it will soon be in condition to handle production from leases recently acquired in the area.

Boom Times in Towns

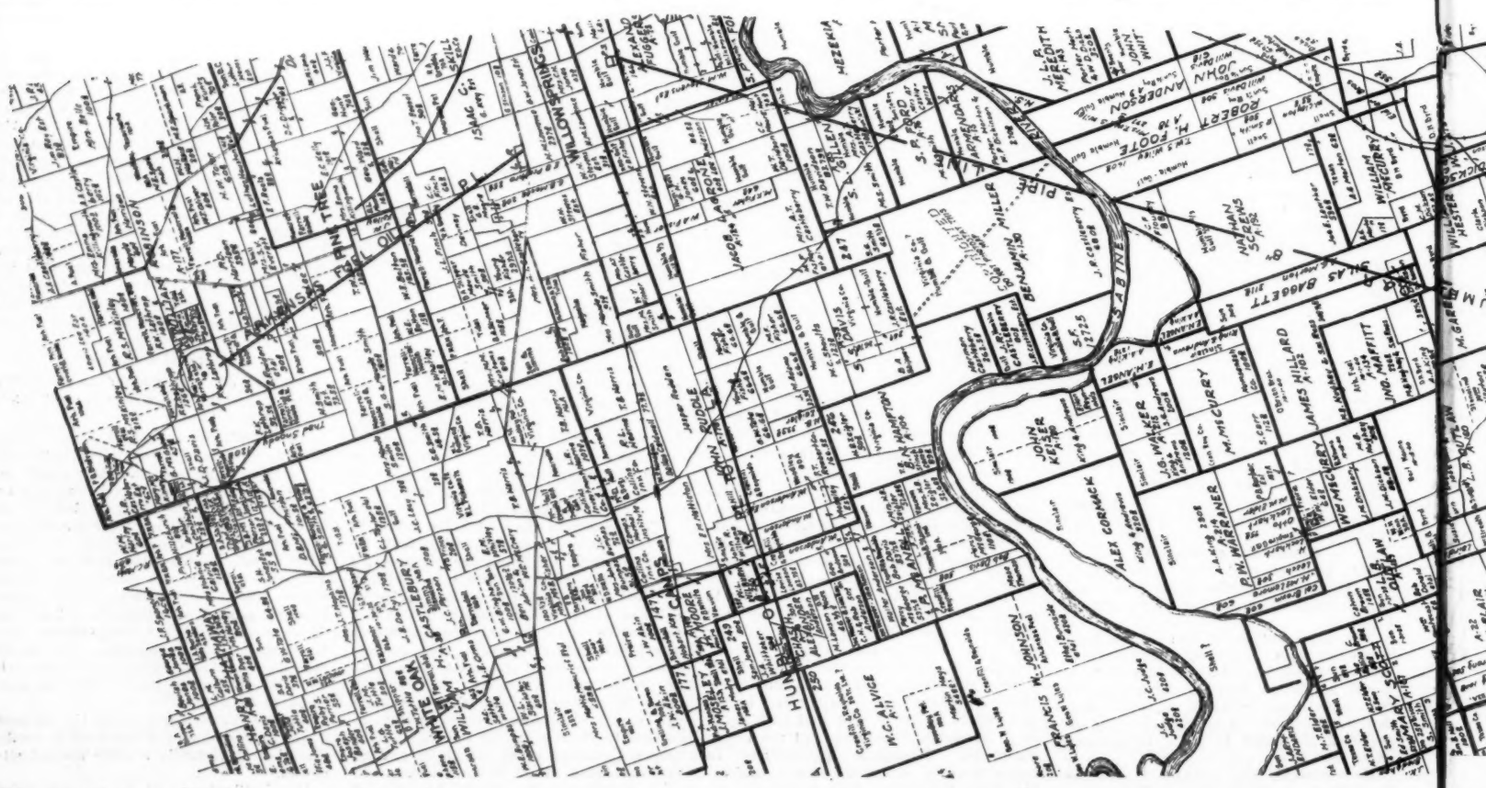
In order to be convinced of the magnitude of the activity and present "play" throughout the various counties on the eastern side of the salt basin a person has to make a trip to the towns of Tyler in Smith County which is district headquarters for many companies, and independent operators; to the new town of Joinerville near the Joiner Pool, Rusk County; to Henderson, the county seat of Rusk County; and up north to Overton and Kilgore, the latter place being only 3½ miles from the Bateman Pool. It is only a "wide place in the road" but the main line of the I. & G. N. Railroad from Houston is bringing in rigs, drilling machinery, supplies and all other equipment by the carloads every day, and several supply companies have constructed warehouses at this point, due to the fact that it is so near the Bateman Pool and lies almost midway between the Joiner Pool and Farrell-Lathrop Pool. Joinerville has several supply houses furnishing the Joiner Field with supplies.

Twelve miles north of Kilgore is Longview, county seat of Gregg County, and headquarters for other companies. The Humble Pipe Line Co.'s 10-inch welded line from the Van Field to Louisiana is but a short distance south of this town, and the company is building a main line pumping station 2½ miles to the southwest on this line, and is constructing an 8-inch line down to the Bateman Field where the Humble Oil & Refining Co. has the 1,440-acre block and well purchased from Ed. W. Bateman and associates. The Humble Oil & Refining Co. now has two rigs on this block and there are eight other rigs on surrounding leases. The Houston Oil Co. will also take crude from this area, and is constructing a gathering system, tank farm and loading rack on the I. & G. N. Railroad on a site purchased in the northwest corner of the D. M. Peterson heirs' 205-acre farm in the I. Ruddle Survey. Oil from this rack will be loaded out to the company's refinery at Camden, Ark., and probably to Houston, Tex.

The Humble Oil & Refining Co. has just purchased 2½ acres near the town of Longview for camp and office site, and other companies operating in this area will no doubt build modern camps in the Bateman Pool and Farrell-Lathrop Field. The Sinclair Oil & Gas Co. will probably construct a small camp near the Joiner Pool, and if it purchases acreage from Farrell and associates offsetting the Farrell and others' No. 1 Lathrop discovery, the company will no doubt construct a camp on that lease.

Many small refineries are rumored for various towns in the district, one reported as possible for Tyler, to be constructed by G. L. Rowsey, president of the Taylor Refining Company, Taylor, Tex.; possibly one at Overton by some independent operators; and two have been rumored for Longview. It is hardly possible that

Picture showing crowds at Kilgore, Tex., and cars containing drilling equipment.



—Map by courtesy Zingery Oil Map Co., Fort Worth, Tex.

Map showing the Bateman Field in northern Rusk County and Farrell-Arkansas Fuel Oil Co. and others' discovery well on the Lathrop farm in the William Robinson Surve Field is shown in its approximate location, running from main line pump station southwest of Longview. Locations, drilling wells and producers are given on their respec well. Sinclair Oil & Gas Co.'s large block may be seen in the large bend in the Sabine River, covering the Alex Cormack and John Kei

any major company will construct a refinery in this district due to the fact that most of the majors have plants in Arkansas, Louisiana or on the Gulf Coast in Texas which is but a comparatively short distance south. Also the oil can be transported economically to the Gulf and loaded out to Atlantic coastal refineries.

Effect on Other Fields

In other words, the new producing areas have a great advantage over West Texas, Panhandle and North Texas Fields, geographically, and will consequently have great effect on curtailing production in those areas.

Moving Rigs From Other Fields

While many rigs and drilling equipment and pipe are being hauled in by the two railroads—the I.&G.N. and Texas & Pacific—the highways leading from Corsicana, Beaumont and Houston on the south, Shreveport, La., and El Dorado, Ark., on the east, Hobbs, N. Mex., West Texas, the Panhandle and North Texas, and as far north as Oklahoma and Kansas on the west and north, are continuously witnessing the procession of trucks from those far-flung districts and fields which have settled in drilling and production, have curtailed drilling activities because of proration, and are not in need of the many rigs which have been stacked in those fields, or have been dismantled ready to move to just such active districts as the new areas in East Central Texas.

The 39.2 gravity crude containing 0.235 per cent sulphur from the Joiner Field is being sold at distressingly low prices on large contracts, bringing only 50 to 60 cents per barrel at the present time. It is being shipped out from the 15-car rack of the Inland Waterways Pipe Line Co. at Friar Switch on the branch line of the I.&G.N. Railroad, 3½ miles north of the Joiner Pool, and also through the Panola Pipe Line Co.'s 18-car rack at the same place. A 4-inch line serves the first rack from the field, and has been looped for 1½ miles, and a 4-inch line, constructed by H. L. Hunt, president of the latter company and also president of H. L. Hunt, Inc., Shreveport, producer in the Joiner Field, also serves the second loading rack. Oil from this rack is being shipped to the Crystal Refining Co.'s refinery at Shreveport. Oil going out from the first named rack is going to refinery at Houston, the Sinclair Refining Co. taking a good portion of it. Fifteen cars per days have been shipped out of this rack for some time.

Pipe Line Activity

The Rusk County Pipe Line Co. formed by F. W. Burford of the Burford Oil Co., Charles Kolp and Frank Foster, has made plans to construct a 6,000-bbl. refinery at Friar Switch, north of the Joiner Pool, and is also laying a 6-inch line from the pool to a 40-car rack at the switch on the I.&G.N. Railroad. An electrical pumping unit will be installed on this line in the field to raise the capacity of the line. The Petroleum Marketing Co., subsidiary of Warner-Quinlan, Inc., has laid a 6-inch line from the field and has two small steam pumps on this line on its five-acre lease on the W. M. Camp farm in the Juan Ximenes Survey. This line runs to a 25-car loading rack which is being constructed 3½ miles to the north on the railroad at Friar Switch.

A 6-inch screw line from the Arkansas Fuel Oil Co., Farrell and others' No. 1

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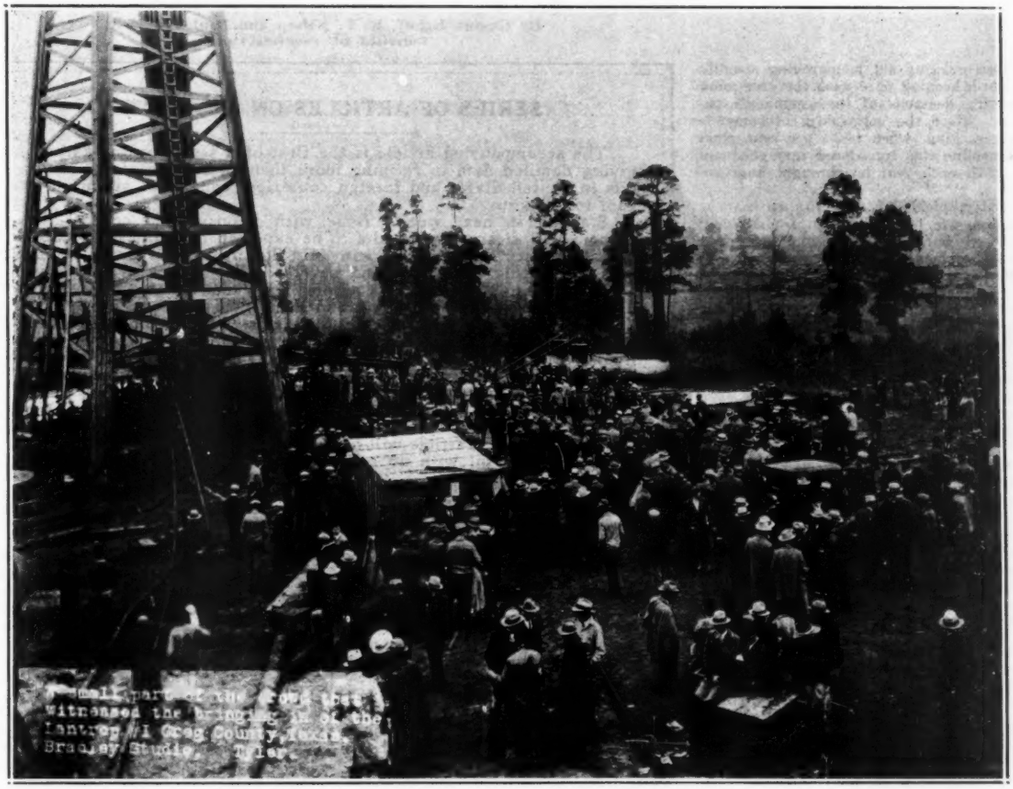


Crowd around Gregg County discovery when it was brought in. Notice vast number of automobiles in the distance. As per usual in East Texas, 25 cents was charged for parking around the well and on near-by farms.

Gregg County, Texas. Arkansas Fuel Oil Co.'s 6-inch line from this well to loading rack on T. & P. Railroad near Willow Springs is also shown. Humble's line to the Bateman leases. The Houston Oil Co.'s tank farm and loading rack are shown on the railroad and D. M. Peterson heirs' tract in the I. Ruddle Survey, north of the Bateman discovery surveys and offset acreage. An ownership map of the Joiner and Bateman areas was published in the January 1 issue of The Oil and Gas Journal.

Cracking Steadily Gaining in Importance

Approximately Three Billion Barrels of Crude Oil Saved. Superior Quality of Gasoline an Important Factor

By Gustav Egloff, E. F. Nelson and Paul Truesdell
Universal Oil Products Co.

SERIES OF ARTICLES ON CRACKING

The accompanying article is the first of a series by the authors giving detailed data in refining more than 20 representative crude oils in United States and foreign countries. Particular attention is paid to cracking.

Starting in next week's issue with Pennsylvania crudes, the authors will discuss the results to be expected by refiners in skimming and cracking operations with Mid-Continent, Gulf Coast, Michigan, California, Kentucky and several other crudes produced in United States. The foreign crudes will include Venezuela, Mexico, Trinidad, Persia, Poland, Egypt and East Indies.

The articles will give not only the yields of finished products but also a detailed analysis of the properties of these products. Of particular interest to marketers as well as plant operators will be the data on antiknock ratings of the gasoline fractions and the results to be anticipated in blending the several grades.

The series will be an outstanding contribution to the literature of the refining industry and will appear exclusively in The Oil and Gas Journal. Each article will be a complete analysis of a particular grade of crude oil with no overlapping of discussions from week to week.

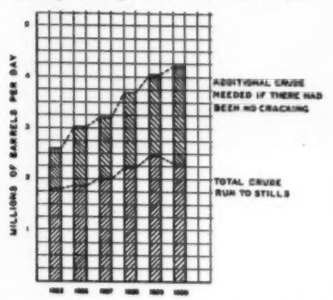
The cracking art is marching steadily onward, keeping pace with the ever more exacting demands of the automobile engine. Since the early days of commercial cracking, when a 30 per cent yield of gasoline was considered very good, up to 1931, each year has brought improvements.

Today, yields of over 70 per cent of gasoline are being obtained from widely varying charging stocks, and the yield is being steadily pushed toward the 80 per cent mark. Not only has the yield of gasoline from cracking been more than doubled, but the quality of cracked gasoline has been improved in equal measure.

Gasoline of 60 benzol equivalent, or 75 octane number, and higher is being produced from different cracking stocks. This fact has given the cracking process ever new importance in the scheme of oil refining.

Cracking and more cracking is still vitally necessary to increase the quantity of gasoline obtainable from a barrel of crude, which was its original purpose. But in its newer aspect cracking has become quite as necessary—perhaps even more so—as the means by which the refiner can make high knock rating gasoline which meets the exacting demands of market conditions.

Straightrun gasoline from most crudes



today is difficult to market as such and if salable at all must usually move at a submarket price. Cracked gasoline, on the other hand, possesses those characteristics which modern automobile engines demand.

Pressure distillation on as large a scale as possible and blending the cracked gasoline with straightrun is the method now generally adopted by refiners to bring their total gasoline output up to market standards. The importance of cracking as a means of improving gasoline is sharply illustrated by a recent occurrence. A refiner had a large quantity of highly knocking paraffinic gasoline which he found impossible to market at any price.

He ran this straightrun gasoline, therefore, through his cracking unit, converting it into a motor fuel of high antiknock value. This indicates that direct cracking of straightrun gasoline is likely to be resorted to more and more as demands for antiknock fuel become more insistent.

An analysis of atmospheric distillation and cracking operations from 1925 to 1930 inclusive shows some interesting facts. These facts are set forth in the accompanying table and charts. The data is the work of Clarel B. Mapes, technologist of the Mid-Continent Oil and Gas Association.

Decrease in Straightrun

Perhaps the most interesting point brought out is that the percentage yield of cracked gasoline has steadily increased in each of the years mentioned, while the yield of gasoline by atmospheric distillation, having reached a peak in 1929, showed a slight decline from that in 1930. Percentage yields in both cases are based on the crude oil refined.

Figures in the table foreshadow the enormous savings of crude oil that are possible as cracking operations are increased. It will be seen that if cracking had not been practiced at all in this six-year period, it would have been necessary to run through refinery stills 2,893,856,875 bbls. more crude than was actually refined, in order to provide the gasoline needed to operate millions of motor cars. Steady betterment of the automobile engine has been the history of the motor industry from its beginning and this fact has widened the scope of cracking from a purely quantity producer of gasoline to a quantity plus quality producer.

As is well known, automobile designers took an important step to improve the power and performance of their engines by increasing the compression pressure under which they operate.

The public early found that high compression engines "knocked" easily on the ordinary gasoline then generally offered for sale, and demanded a fuel suitable for the new engines. Development of "antiknock" fuels was the result.

Ethyl Gasoline was developed as a fuel for engines of high compression, and is being marketed aggressively and in ever-increasing volume. However, a large percentage of the motoring public will not willingly pay a premium price for gasoline, however good it may be; but these motorists, nevertheless, want a gasoline which will run their cars satisfactorily.

It is this fact more than any other which has led to the increasing demand for cracked gasoline, because cracked gasoline possesses high antiknock value in itself, and when blended with even a badly knocking straightrun gasoline, will improve the knock rating sufficiently to make it a generally acceptable motor fuel.

At the same time, new ideas with regard to volatility have been formed. The motorist demands, even more insistently, quick starting and rapid acceleration; and he sets up a further hurdle for the refiner by demanding that the gasoline, while being volatile enough to start instantly in cold weather, must not contain such volatile constituents as to cause "vapor-lock" in the new automobiles, some of which are highly susceptible to this complaint.

While the old so-called "Navy" or U. S. Motor gasoline specifications still survive officially, at least to the extent of specifying an endpoint of 437° F., it is in the discard as far as general market requirements go. A gasoline of 437° F. endpoint is difficult to market these days, except, possibly, in midsummer. Present day gasoline has an average of about 405° F. endpoint.

Today, it is estimated that about 20 per cent of the gasoline sold commands a premium price on the basis of superior antiknock value. It speaks well for the progressiveness of the American refiner that the other 80 per cent of the cars are running on the standard grade of gasoline, the country over.

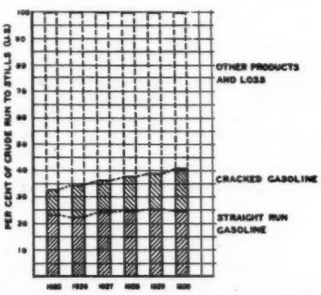
This fact also indicates increased use of the cracking process and advancement in this art, because without the admixture of a substantial percentage of cracked gasoline, the refiner would not be able to meet, as well as he does, the requirements of modern engines. Definite proof that cracking has greatly increased in volume in recent years is furnished by the fact that today more than one-third of the country's gasoline supply is cracked motor fuel, as compared with less than one-fifth a few years ago.

The cracking process and its product during their early years had a hard time to prove themselves respectable, not only in the eyes of the public but even in the eyes of the refiners themselves; and the fact that a motor fuel contained cracked gasoline was disguised as much as possible when that gasoline was offered to the public. In 1920, and even later, the refiner's anxiety was, "How much cracked gasoline can I blend with my straightrun and get away with it?" Now it is, "How much straightrun can I blend with my cracked and get away with it?"

The demand for antiknock quality has recently aroused new interest in cracking in the minds of refiners who hitherto had felt no special need for its aid. The Pennsylvania oil refiners, for instance, who for many years have regarded the manufacture of superlative lubricants as their chief business in life, and treated the manufacture of gasoline as incidental, have now turned to cracking.

In California, too, where much of the crude produced furnishes, by distillation, a gasoline naturally high in antiknock value, cracking is surely establishing itself on a larger scale as a means of converting heavy, nonrefinable crude, on the one hand, and light kerosene distillate, on the other, into motor fuel acceptable to the present-day motorist. The flexibility that has been developed in the cracking process is one of its most important features to the refiner. It is flexible over a wide range, both as to the charging stocks it can handle and the products it can make from them.

As has been proved in the refinery, the cracking process can take any stock from the heaviest crude or fuel oil that can be pumped—gas oil, kerosene and even low grade straightrun gasoline—and obtain a high yield of antiknock motor fuel. Not only can gasoline, the primary product of cracking, be produced to meet the demands of the market today,



but the process may be so operated as to produce valuable by-products as well.

Combustion systems have been devised which make more profitable the burning of coke, not only under the stills and boilers in the refinery itself but also in industrial power plants. It may be used in some cases for electrode or metallurgical purposes. Or it may be briquetted, competing with anthracite coal.

Where the coke market is poor, the refiner can operate his cracking plant by the "flashing" system, thereby making fuel oil as a residue instead of coke. By proper regulation he can control the characteristics of this fuel oil to meet any market specifications. The "bottoms" remaining after rerunning the pressure distillate makes an excellent domestic furnace oil or Diesel oil; or, by proper fractionation, a good tractor fuel.

Fixed Gases

Progress has been made toward a better utilization of the fixed gases from the cracking plant as a source of enrichment for producer, water, and other low thermal gases. Propane and butane, derived from cracked gas, are sold as liquids under pressure in steel "bottles" for domestic fuel and for cutting metals in industrial operations or are mixed with air in small gas plants to produce household heating gas. Cracked gases are being used also to a limited, but increasing, extent as the raw material for the synthesis of valuable chemical products.

Present indications are that cracking will soon be required on a larger scale than ever before, not alone due to the economics involved but also because of the progress being made in the estab-

(Continued on Page 118)

CRUDE OIL AND GASOLINE PRODUCTION

Year—	Crude oil refined daily	Straightrun gasoline per cent of crude	Cracked gasoline per cent of crude	Straightrun and cracked gasoline per cent of crude	Crude oil bbls. per day saved by cracking	Crude oil saved by cracking total bbls. per year
1925	2,027,178	23.16	9.27	32.43	811,160	296,073,400
1926	2,134,970	22.88	12.03	34.91	1,122,521	409,720,165
1927	2,270,781	23.77	12,20	35.97	1,166,732	425,857,180
1928	2,495,342	24.00	13.42	37.42	1,395,307	509,287,055
1929	2,705,447	24.78	14.83	39.61	1,589,982	580,343,430
1930	2,584,577	24.53	17.46	41.99	1,842,673	672,575,645
Total						2,893,856,875

Great Lakes Gasoline Pipe Line Tariff

Rates Established to Kansas City and Points Beyond Approximate Present Rail Costs. To Use Trucks

By W. T. Ziegenhain

The first of a series of gasoline pipe line tariffs covering the shipping of gasoline from the Mid-Continent to points North, became effective February 2 when the Great Lakes Pipe Line Co. filed its rate on shipments from Ponca City and Barnsdall, Okla., to the company's terminal in Kansas City, Kans., locally and on traffic destined beyond to be transshipped by rail. Rates were also included on deliveries to intermediate points along the line, namely, Independence, Humbolt and Paola, Kans.

Considerable interest has been manifest by the industry and by the railroads as to the basis on which the pipe line rates would be made, but it now becomes apparent the pipe line rates have not been designed to break down the all-rail rates from Mid-Continent refining points to this territory.

The tariff just filed is known as I.C.C. No. 1 and was issued January 24 by Harry Moreland, vice president of the company. Other tariffs will be filed with the Interstate Commerce Commission from time to time as additional portions of the pipe line are completed and eventually similar rates will be filed for deliveries to the company's terminals at Des Moines, Iowa, Minneapolis, Minn., Chicago, Ill., Milwaukee, Wis., and St. Louis, Mo. In the case of the St. Louis tariff a combination pipe line rate will be made later, in as much as the Great Lakes pipe line will deliver the gasoline to the new Phillips pipe line at a point near Paola, Kans., for delivery into the St. Louis area, when the Phillips line is completed.

Basis of Tariff

In explaining the basis for the new tariff, A. F. Winn, traffic manager for the Skelly Oil Co., one of the six companies owning an interest in the Great Lakes pipe line said: "This tariff was so compiled that the transport rates on local pipe line deliveries will be the same as the all-rail rates and on gasoline transshipped by rail beyond the Fairfax terminal at Kansas City will approximate the all-rail rates from Group 3 to tariff destinations in northeastern Kansas, southeastern Nebraska and that portion of Missouri north of the Missouri River except to a few scattered destinations in the southwest portion."

In compiling the tariff to points beyond the Fairfax terminal 23 rail transshipping groups have been created, including 8 in Kansas, 2 in Nebraska and 13 in Missouri. The rates to these have been based on the all-rail rate from Group 3 in all cases and where the rate on the local rail haul from the terminal, plus the normal pipe line rate to the terminal exceeds the all-rail rate, a proportionate pipe line rate has been established on the pipe line haul making the combination cost equal to or slightly under the all-rail rate. The Great Lakes Pipe Line Co. has not attempted to publish so-called through rates in connection with the rail carriers because to do so would, under the tariff rules of the Interstate Commerce Commission, require specific concurrences from all rail carriers involved.

Thus under the mechanics of handling the assessments to be made against the companies using the facilities of the Great Lakes Pipe Line Co., that company will bill the shipper the full local charge to the pipe line destination and then upon proper evidence of transshipping by rail, will refund to the shipper, on such gallonage the difference between the local pipe line rate, originally assessed and the group proportional rate to such terminal point as applicable. The transport charges will in all cases, as stated before, be very close or equal to the all-rail rate. At no time will the difference in the cost per barrel on gasoline transshipped exceed 3 cents which when converted to a cost per gallon is only .08 cent.

COMPARISON OF PIPE LINE AND RAIL RATES

To show the close relation between the new pipe line rates and the all-rail rates the following points were picked at random as representative. These rates apply to tender shipments of gasoline from Barnsdall and Ponca City, Okla., and on a movement of at least 50,000 bbls. from one consignor to one consignee, to be delivered at one point or several points along the line:

Destination—	Pipe line rate to Fairfax, cent per gal.	Rail rate from Fairfax, cents per gal.	Combination rate, cents per gal.	All-rail rate, cents per gal.
St. Louis, Mo.	.52	1.45	1.97	1.98
Jefferson City, Mo.	.67	1.29	1.96	1.98
St. Joseph, Mo.	.79	.86	1.65	1.68
Sabetha, Kans.	.95	1.22	2.17	2.18
Fall City, Nebr.	.79	1.39	2.18	2.18
Beatrice, Nebr.	.60	1.58	2.18	2.18

High Local Rail Rates

Under the present arrangement, relatively high local rail rates beyond pipe line transshipping point are often involved. In these cases as many revisions downward will be sought as deemed reasonable and where it is found that the local rail rate still appears excessive, the Great Lakes Pipe Line Co. will doubtless operate or arrange for the operation of a system of tank trucks which will distribute the gasoline within an economic radius from the pipe line terminals and pumping stations. This phase of the distribution system will, in time, be further expanded through the establishing of water terminals along the navigable rivers and along the Great Lakes from which distribution will be made by trucks as a further means of reducing transport costs.

Naturally, these auxillary facilities will be developed slowly and only where the existing means of transportation are too costly to permit meeting marketing competition from refiners in other areas who hold some natural advantage as to location or means of transportation. Co-operative efforts on the part of the railroads has already been shown in the fact five railroads have extended their tracks to the Fairfax terminal in Kansas City. These include the Union Pacific, Missouri Pacific, Frisco, Kansas City Southern and the Chicago Great Western. A similar move is expected when other major terminal points are established in order to hold as much of the oil to the rails as possible.

It is not the idea of the six refining companies entering into the building and operation of this pipe line that the existing retail price structure be broken down in those territories to be served by the pipe line. This is further evidenced by the fact the pipe line rates were made to approximate the rail rates to all points.

Included in the list of six refining companies owning an interest in the Great Lakes Pipe Line Co. are the Continental Oil Co., Barnsdall Oil Co., Skelly Oil Co., Mid-Continent Petroleum Corp., Phillips Petroleum Co. and the Pure Oil Co.

The rules and regulations outlined in the tariff and made a part of the agreement for the transportation of the gasoline through any of the lines of the Great Lakes Pipe Line Co. are summarized below.

Rules and Regulations of the Great Lakes Pipe Line Co.

This company will receive gasoline for transportation only to established terminal points on its own line on the following conditions:

Specifications Required

Gasoline will be received for transportation at such time as gasoline of similar quality is currently being transported from receiving point and when such gasoline so tendered is of the same quality and specifications.

Minimum Tender

Gasoline of the required specifications will be accepted for transportation under this tariff in shipment of not less than 50,000 bbls. (42 U. S. gallons per barrel) from one consignor, consigned to one consignee.

Quantity and Place of Delivery

Delivery will be made wholly or in part at any terminal point on the lines of the Great Lakes Pipe Line Co. named in this tariff.

Acceptance Free From Liens and Charges

Gasoline will be accepted for transportation only when free from all liens and charges.

Pipeage Contracts Required

Separate pipeage contracts in accord with this tariff and these regulations covering further details may be required of the proposed shipper before any duty of transportation shall arise.

Gauging

Gasoline will be gauged and tested in the tanks of the carrier by its representatives prior to the acceptance thereof.

Temperature Corrections

Gasoline of required specification will be received and delivered, corrected as to temperature from observed degrees A.P.I. to degrees A.P.I. at 60° F.

Payment of Transportation and Other Charges

The consignor shall pay the transportation and all other lawful charges accruing on gasoline tendered for shipment, based on the local rate prevailing to the terminal points of the Great Lakes Pipe Line Co. named in this tariff. If required, all charges shall be paid in advance or before release from storage. Gasoline accepted for such transportation shall be subject to a lien for all such charges.

Adjustment of Transportation Charges

Upon presentation by consignor to the Great Lakes Pipe Line Co. of the original paid destination railroad freight bill or other documentary evidence satisfactory to Great Lakes Pipe Line Co., showing date of shipment from terminal point within one (1) year from date of acceptance of tender, refund of charges on a like amount of gasoline received at the terminal through the lines of the Great Lakes Pipe Line Co. will be made, equal to the difference between the rate paid to the Great Lakes Pipe Line Co. to the terminal point, and the group proportional rate to such terminal point applicable on traffic destined to rail destination groups named herein in effect on the date of reshipment from the terminal point.

Liability of Carrier

The carrier shall not be liable for any loss or damage or delay caused by act of God, public enemy, quarantine, authority of law, strikes, riots, fire or the act or default of the shipper or owner, or from any other cause not due to the negligence of the carrier whether similar or dissimilar to the causes herein enumerated; in such cases the owner shall stand the loss in the same proportion as the amount tendered for transportation bears to the whole amount of the consignments (in the system of the carrier at the time of such loss) and shall be entitled to receive only such portion of his tender as is left after deducting his due proportion of the loss, as above.

Destination Facilities

Gasoline will be received for transportation under the terms of this tariff only when the shipper or consignee has provided the necessary facilities for receiving said gasoline as it arrives at terminal points.

Notice of Arrival and Demurrage Charges

The obligation of the carrier is to deliver at the destination station the quantity of gasoline to be transported, less deductions, or plus additions account temperature correction, and such delivery may be made upon 24 hours' notice to the shipper or consignee who shall receive said gasoline from the carrier with all possible dispatch into tanks to be provided by the shipper or consignee. Said tender of gasoline for delivery may be made at the point of destination at a rate not exceeding 24,000 bbls. (42 U. S. gallons per barrel) per day of 24 hours' notice. A demurrage charge will accrue on all gasoline at the expiration of 24 hours in the sum of one-eighth of 1 cent per barrel covering gasoline not received as tendered by the carrier, and shall be charged for each day's delay or fractional part thereof until the gasoline is received.

Duty of Carrier

The carrier shall not be required to transport gasoline except with reasonable diligence considering the quantity of gasoline to be transported, the distance of transportation, and other material elements.

Claims, Time for Filing

Except where property is lost or damaged in transit by carelessness or negligence of the carrier, claims for loss or damage must be made in writing to the carrier within nine (9) months after delivery of the property, or in case of a failure to make delivery, then within nine (9) months after a reasonable time for delivery has elapsed. Suits for loss or damage shall be instituted only within two (2) years and one (1) day after delivery of the property, or in case of a failure to make delivery, then within two (2) years and one (1) day after a reasonable time for delivery has elapsed; provided, however, that where claims have been duly filed with the carrier, suit must be brought within two (2) years and one (1) day after notice in writing is given by the carrier to the claimant that the carrier has disallowed the claim or any part or parts thereof specified in the notice. Where claims for loss or damage are not filed or suits are not instituted thereon in accordance with the foregoing provisions, such claims will not be paid and the carrier will not be liable.

Absorption of Switching Charges

Great Lakes Pipe Line Co. will absorb railroad switching charges as published and on file with the Interstate Commerce Commission on interstate traffic, and state commissions on intrastate traffic, applying from regularly established loading racks used by the Great Lakes Pipe Line Co. at its pipe line terminal at Fairfax (Kansas City), Kans., to delivery locations within the switching limits of Kansas City, Missouri-Kansas, as defined by individual tariffs lawfully on file; also switching charges in connection with outbound rail shipments to points

(Continued on Page 111)

Oil Consumption and Antiknock Rating

Tests Show That Different Rates in Oil Requirements and Varying Temperatures Directly Reflected in Octane Number Results

By H. R. Stacey
Research Engineer, Standard Oil Development Co.*

When the oil consumption is relatively high, that the results obtained are subject to variation has been the experience of many users of knock-testing engines. This condition is not completely changed by cleaning the carbon from the combustion space in cases where the oil consumption is such as to give excessive carbon deposits and undoubtedly part of this variation is caused by the oil itself. Moss and King[1] have shown that the partial admixture of the lubricating oil with the incoming charge has a deleterious action on the antiknock value of fuels. The differences obtained with oils and fuels by reference to secondary standards based on mixtures of iso-octane and normal heptane are evaluated in this paper.

Test Apparatus

The apparatus used was an Ethyl Gasoline Corp. water-cooled engine fitted with a mercroid temperature control on the intake air and with heating and cooling coils in the oil sump. The temperatures of the intake air and of the oil in the sump were measured by thermocouples. All tests were made at the air-fuel ratio for maximum knock and at a knock intensity for reliable readings on the bouncing pin.

The following were kept constant during the tests: Speed, 600 r.p.m. by a synchronous motor attached to the crankshaft; intake air temperature, 85° F.; spark advance, 22° before top center, and water jacket temperature, 212° F.

Two oils having a Saybolt viscosity of 62 seconds at 210° F. were used, one made from Pennsylvania and the other from Coastal crude. These oils were chosen because of their wide general use and their different natural properties.

Two base gasolines were used for these tests: (1) Straightrun California of good antiknock value; (2) straightrun Burbank of poor antiknock value.

From the Burbank two fuels were made to equal the octane number of the California by the addition of tetraethyl lead and a benzol having an endpoint of 212° F. under the following conditions. Pennsylvania oil was used in the crankcase and the temperature of the oil kept constant at 110° F. The oil consumption of the engine was kept at the minimum for good operation, approximately one-half per cent of the fuel consumption, by close-fitting piston and two oil rings. We found that the Burbank required 1.8 cc. of tetraethyl lead or 34 per cent of benzol to equal the California gasoline. Changing the oil in the crankcase from Pennsylvania to Coastal made no difference in the results, showing that under conditions of low oil consumption no relative change was found in the octane number. This procedure allowed of the investigation of three different fuels of equal octane numbers under standard test conditions; namely, (a) straightrun California, (b) straightrun Burbank plus 1.8 cc. of tetraethyl lead per gallon, and (c) 66 per cent of straightrun Burbank plus 34 per cent benzol.

Causes of Variations

We assumed that variations in octane numbers with different rates of oil consumption would be due to two causes:

1. Partial admixture with the incoming charge by leakage past the piston.
2. Differences in cooling of the piston due to different rates of heat transfer between the piston and the cylinder wall.

The relative contributions of (1) and (2) are impossible to obtain but the direction of the effect of (1) was obtained by dissolving the oils in the fuels and of (2) by changing the temperature of the oil in the sump. This latter gave the effect of change of oil temperature during actual testing. The effect of change in oil consumption was found by increasing the volume of oil in the sump and fitting a loose piston.

Table 1 shows the effect of adding

(Continued on Page 115)

*Annual meeting, Society of Automotive Engineers.

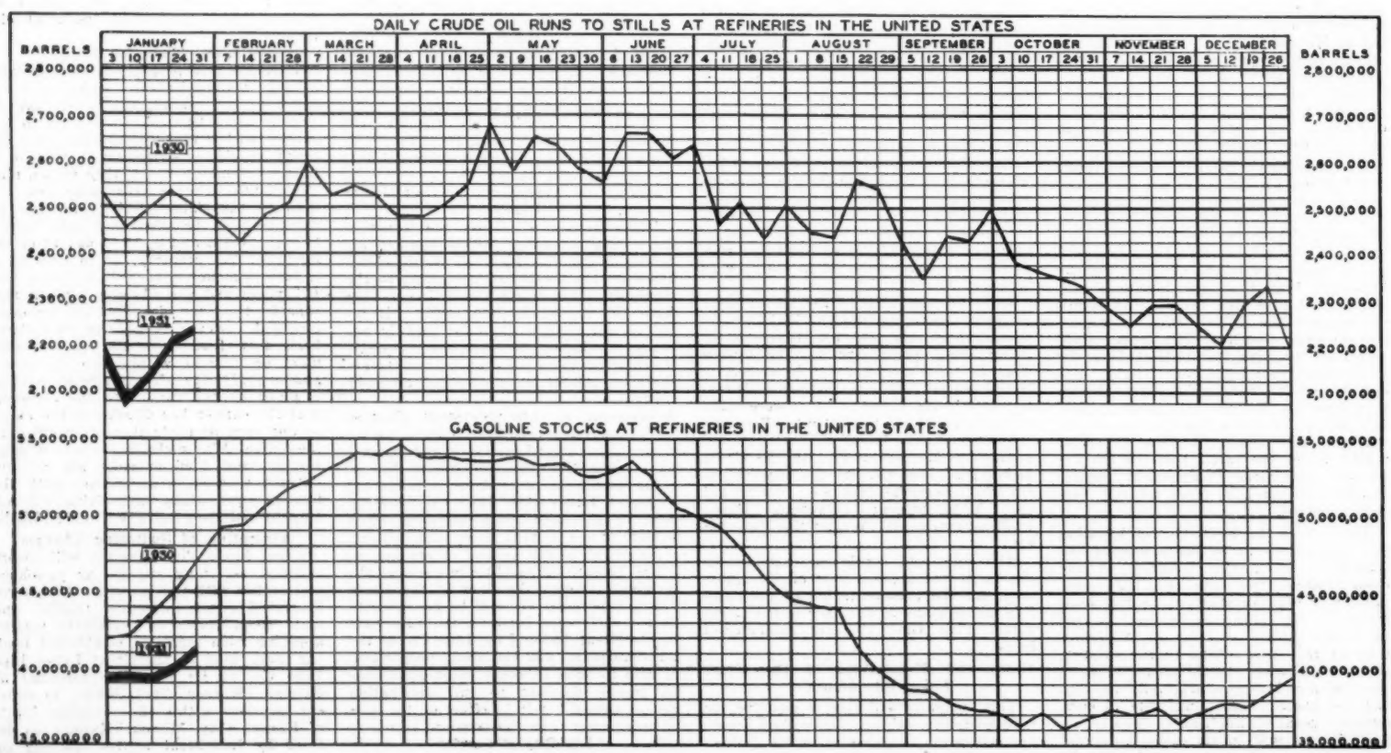
[1]See Engineering, July 11, 1930, Page 31, and July 25, 1930, Page 99.

AMERICAN PETROLEUM INSTITUTE WEEKLY REFINERY STATISTICS

The weekly report made to the American Petroleum Institute on refinery statistics—crude runs to stills, gasoline stocks and gas and fuel oil stocks in barrels—for the week ending January 31.

	Week ending January 31				Week ending January 24, 1931				Week ending February 1, 1930			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
East Coast	100.0	461,000	6,913,000	8,219,000	100.0	438,700	6,476,000	8,400,000	100.0	3,250,000	7,712,000	7,017,000
Appalachian	93.8	85,300	1,252,000	1,056,000	93.8	83,700	1,157,000	1,046,000	91.0	589,800	1,486,000	723,000
Indiana, Illinois, Kentucky	97.5	248,000	4,806,000	2,988,000	97.5	248,200	4,669,000	3,003,000	98.6	2,064,500	6,797,000	3,237,000
Oklahoma, Kansas, Missouri	89.4	236,300	2,933,000	3,838,000	89.4	247,700	2,800,000	3,826,000	88.4	1,822,400	4,390,000	3,021,000
Texas	91.9	551,000	6,856,000	9,926,000	91.9	560,300	7,582,000	10,070,000	90.3	3,796,000	8,162,000	12,416,000
Louisiana and Arkansas	98.3	137,700	1,438,000	2,415,000	98.3	134,100	1,596,000	2,290,000	96.8	1,276,800	2,425,000	4,221,000
Rocky Mountain	93.1	33,800	1,737,000	949,000	93.1	40,400	1,700,000	854,000	93.5	385,100	2,576,000	1,017,000
California	98.8	465,300	15,722,000	102,321,000	98.8	478,600	15,515,000	102,463,000	98.0	4,154,500	15,638,000	108,892,000
Total United States	95.7	2,217,400	41,657,000	131,712,000	95.7	2,231,700	41,495,000	132,052,000	95.0	17,339,100	49,180,000	140,544,000
Texas Gulf Coast	100.0	434,900	5,710,000	7,470,000	100.0	436,900	6,165,000	7,626,000	99.4	3,013,200	7,084,000	9,644,000
Louisiana Gulf Coast	100.0	96,700	1,212,000	1,390,000	100.0	88,300	1,355,000	1,308,000	100.0	810,000	2,070,000	3,407,000

(1) Per cent of refinery capacity represented. (2) Daily crude runs to stills. (3) Gasoline stocks. (4) Gas and fuel oil stocks.



*Data for 1930 based on weekly reports of the American Petroleum Institute. Data for 1929 derived from monthly reports of the Bureau of Mines, Department of Commerce. Figures for last week not shown in graph but are included in above tables.

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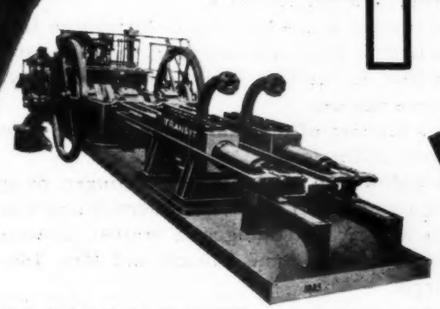

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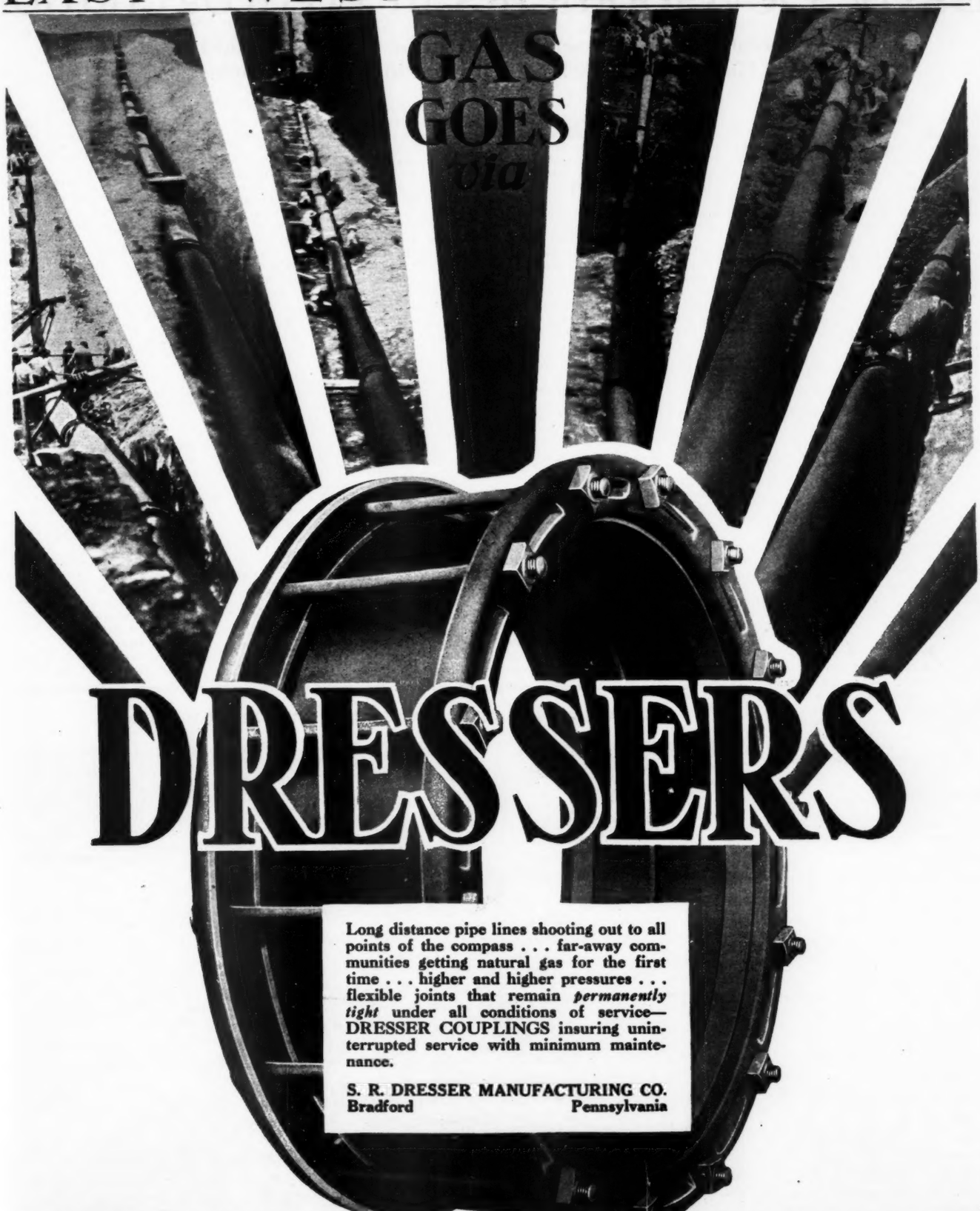

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DRESSER COUPLINGS DOMINATE

Early Developments in Hydrogenation

Laboratory and Commercial Discoveries Largely Confined to Coal Have Given Basis for Application in Petroleum Industry

By V. N. Ipatyev*

The hydrogenation of coal accompanied by the formation of liquid products was observed by M. Berthelot 60 years ago. Berthelot succeeded in converting powdered coal up to two-thirds into liquid and gaseous products by heating it together with hydroiodic acid in a fused tube to about 270° C. In his opinion the liquid products were composed of paraffin hydrocarbons. More recently F. Fischer and G. Tropsch in repeating these experiments have confirmed Berthelot's observations.

The technical value of Berthelot's experiments was realized only upon the discovery of highly compressed hydrogen as a powerful reducing agent. The ability of highly compressed hydrogen to combine with unsaturated organic compounds was first pointed out by Ipatyev, who in 1905 applied the method of catalytic hydrogenation under pressure. This type of reaction, however, was made possible only by the development of the necessary apparatus, a development which was accompanied by a number of construction difficulties. The first models of Ipatyev's bombs date back as far as 1903-1904. In spite of the fact that the first experiments in this new direction were for the purpose of carrying out the addition of hydrogen with the best possible preservation of the skeleton structure of the original material, the actual fact that no carbon is formed in the decomposition of alcohols under high pressure pointed out the importance of pressure as a factor of primary importance in the field of the investigation of pyrogenetic reactions.

Bergius' Work

Bergius showed in 1913 that by carrying out the reactions at elevated temperatures, a combination of hydrogen with highly complicated mixtures of various organic high molecular weight compounds such as dense hard coal, heavy crude oil, etc., can be expected. A joint action of specific comparatively sensitive catalysts is of course out of question in this case. This makes it possible to talk about hydrogenation without catalysts, although Ipatyev is of the opinion that in this case the metallic walls of the container played the role of catalysts.

Shortly after Bergius work, F. Fischer and Keller investigated the coking of coal under elevated hydrogen pressure and found a much smaller yield of coke with a higher yield of tar. It might be interesting to mention that the late Prof. Emil Fischer in a speech made at a meeting on the layout of research in the German Coal Research Institute had already pointed out the possibility of improving coal by this method. F. Fischer and G. Schrader later published their experiments on hydrogenating coal using sodium formate as well as carbon monoxide and water. Here hydrogen formed in the nascent state caused the transformation of coal into a soluble state or directly into oil.

In 1924 Waterman and Kortland studied the influence of hydrogen and carbon monoxide on brown coal and on brown coal coke suspended in paraffin oil. They came to the conclusion that the hydrogenation of brown coal depends to a great extent upon the hydrogenation of the semicoke. In this way they confirmed the assumption previously made by F. Fischer, i.e., that the bituminous part of coal does not play the main part in hydrogenation. Hydrogenation of coal has been studied by numerous investigators; among whom A. Kling and Brillant should be noted particularly for testing carefully the working methods at the plants in Mannheim-Rheinau at the order of a German government committee.

All of these authors came to the same conclusion, that the influence of elevated temperatures and pressures, which had already been pointed out by Ipatyev in 1904, served as the basis for the Bergius patents. These principles include the application of a liquefying medium and possibly a more vigorous agitation of the reacting mass, in addition to the use of very high initial hydrogen pressure and a temperature not lower than 400° C. Only by observing these basic conditions (and quite a number of additional conditions) can the conversion of coal into a crude oil-like liquid be carried out with a sufficiently good yield.

It should be kept in mind that the conversion of coal into a crude oil like liquid can not be compared, by any means, with the delicate hydrogenation encountered in the investigation of catalytic hydrogenation reactions. The product obtained from coal constitutes a mixture of compounds which have a structure perhaps not less complicated than the original coal. The reaction is accompanied by the formation of a considerable amount of gaseous products, water and semicoke. This might be called hydrogenation possibly only in the sense that the content of hydrogen in the total of the final products is higher than that in the original coal. There is no question of keeping the skeleton of the basic structural arrangement of the coal intact in this case.

Bergius announced at the general meeting of the Association of German Chemists held in 1924 at Rostock, "There are no more difficulties in the way of a technical realization of hydrogenating coal on a manufacturing scale." The wonderful development in the liquefaction of coal in Germany shows that Bergius was perfectly justified in this assumption. The technical difficulties are overcome regardless of their immensity. The commercial aspects should be considered generally speaking quite favorable. But when a deeper study into the nature of the process is made, one finds an almost virgin ground which has not been touched by any important investigations which compare in the slightest degree with the importance of the problem.

Decomposition Reactions

As can be seen from later publications of Bergius and his followers, the theoretical explanation of the coal liquefaction process was based to a great extent on the decomposition reactions—the cracking of crude oil as carried out on a technical scale in the plant of the "Aktien Gesellschaft fur Petroleum Industrie" in Nurnberg, Germany. Here the methods for maintaining a continuous supply of the raw material into the reaction vessels, the removal of the waste products, the role of the addition of catalysts as worked out in the refining of heavy asphalt base crude oil were applied in the coal liquefaction technic. The investigation by Ipatyev and L. Gurvich (1913-15) on cracked crude oil products under pressure indicated that this factor plays an important and favorable part, increasing the yield and improving the composition of the products as compared with cracking at ordinary pressure. The introduction of hydrogen into the reaction influences the reaction still more in the above direction. For this reason Bergius' method as applied to coal should be considered not only as a hydrogenation but also as a cracking reaction. Waterman and Perkin as well as M. Dunkel and M. Heyn find that no direct hydrogenation of coal occurs, but that a splitting of the complicated coal molecule and the combining of hydrogen with the fragments formed together with the cracking of larger molecules takes place. Waterman and Perkin were trying to support this opinion experimentally on the basis of the results on the decomposition of paraffin under pressure. It should be noted that the selection of this substance is very unfortunate. It is quite natural that paraffin being an absolutely saturated compound is not capable of adding more hydrogen and that the addition of hydrogen becomes possible only upon cracking of paraffin. Then the unsaturates formed are able to add on hydrogen, resulting in a higher content of hydrogen in the reaction product than that of the original product. Nevertheless it is not possible to extend the results with paraffin to coal, because the materials are fundamentally different. A mixture of methane hydrocarbons and a mixture of highly complicated cyclic hydrocarbons containing in part products high in carbon would behave entirely differently in any chemical treatment. Results obtained for a material of a definite structure will always be considered of insufficient proof when dealing with material of a complicated and at the present time almost unknown structure.

General Rules

Already in the investigation of the hy-

(Continued on Page 122)

*Member of the Petrograd Academy of Science.

LATEST VIEW OF PLAYA DEL REY OIL FIELD, CALIFORNIA

—Union Oil Bulletin.

One of the major curtailment problems on the Pacific Coast because of town lot drilling. The northwest corner of the Union Oil Co.'s "Del Rey" lease is shown in the right foreground.

PENBERTHY PRODUCTS

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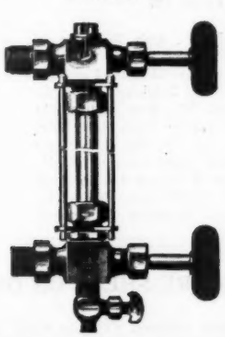

SUPPORTERS OF PRORATION HEARD BY OKLAHOMA COMMISSIONERS

By James McIntyre

OKLAHOMA CITY, Okla., Feb. 3.—The hearing before the Corporation Commission on the petition of a portion of Oklahoma City operators that the allowable production of that field be raised to 10 per cent of potential was resumed today after a several days' adjournment and the taking of testimony of opponents to any change in the proration percentage was continued.

In between the taking of testimony the commission listened to a prepared statement of the Sinclair Oil & Gas Co. presented by its special counsel, Pat Malloy, giving that company's position. The Sinclair company not only desires permission to take 10 per cent of its potential from the field but may ask for higher percentage later, stating that its requirements were 100,000 bbls. a day but that 10 per cent of its potential in Oklahoma City would amount to only 42,000 bbls. a day. Mr. Malloy, in answer to a question, said his company was not in the market as a buyer of oil in Oklahoma City and intended if the percentage was increased to run the oil from its own properties.

Malloy endeavored to discount the efficacy of the whole proration movement, declaring that under the proration system Oklahoma had lost a market for 300,000 bbls. of oil per day and that Texas and California and foreign fields had increased their crude oil sales at the expense of the Oklahoma Field. He also pointed to the distressed condition of northeastern Oklahoma producers without a market as another evidence of the failure of proration to stabilize market conditions.

Effect in East Texas

Jake L. Hamon, Jr., of Ardmore, an operator in the Oklahoma and Texas fields and a member of the East Texas advisory committee on proration, told the commission that operators in the recently discovered field in Rusk and Gregg Counties, Texas, would be influenced largely by the decision of the Oklahoma Corporation Commission on the question of increasing the allowable production of the Oklahoma City Field. Mr. Hamon said East Texas operators feared Oklahoma City would be permitted to produce up to 400,000 bbls. a day. Therefore they were demanding that they be permitted to produce as much, and in Mr. Hamon's opinion this will soon be possible as the East Texas Field is known to be 25 miles long and 3 miles wide; that wells can be completed in two weeks drilling time at a cost ranging from $18,000 down to $12,000 per well, and that the wells thus far completed have shown enormous potentiality.

The witness said that 65 wells would be completed in the next two weeks. The proration committee of which he was a member on Thursday will petition the Texas State Railroad Commission to limit the production of the Rusk-Gregg County Field to 50,000 bbls. per day. The field is located close to tidewater and to the Mississippi River and is well provided with railroad facilities and is close enough to trunk pipe lines to make the building of lines into it a matter of a short time.

Mr. Hamon expressed the opinion that

(Continued on Page 117)

OIL MAN'S CALENDAR

FEBRUARY

10-14—Chicago, Ill., American Society of Engineers, National Fuels Meeting, and Midwest Power Conference, Stevens Hotel.

16-19—New York, N. Y., 140th Convention, American Institute of Mining and Metallurgical Engineers.

16-21—San Francisco, Calif., National Western Metal Congress and Exposition.

18—Louisville, Ky., Kentucky Petroleum Marketers Association, Seelbach Hotel.

18-19—Peoria, Ill., Illinois Petroleum Marketers Association.

24—New York, N. Y., General Committee, A.P.I. Division of Marketing.

24-26—Columbus, Ohio, Ohio Petroleum Marketers Association, Neil House.

25—New York, N. Y., Board of Directors, American Petroleum Institute.

MARCH

10-12—Excelsior Springs, Mo., Western Petroleum Refiners Association, Elms Hotel.

11-13—Detroit, Mich., Michigan Oil Men's Association, Statler Hotel.

16-22—Los Angeles, Calif., second annual Exposition, Oil Equipment and Engineering Exposition.

19-20-21—San Antonio, Tex., American Association of Petroleum Geologists, Gunter Hotel.

30-3—Indianapolis, Ind., eighty-first meeting, American Chemical Society.

APRIL

11-19—Detroit, Mich., convention, Aeronautical Chamber of Commerce.

13-18—Philadelphia, Pa., eighth annual convention and exposition, American Oil Burner Association, Ben Franklin Hotel.

15-16—St. Louis, Mo., first mid-year meeting, A.P.I. Division of Refining, Statler Hotel.

23-24—Cleveland, Ohio, semiannual meeting, National Petroleum Association, Hotel Cleveland.

MAY

4-9—Charlotte, N. C., Good Roads Convention.

Memphis, Tenn., Natural Gas Department, A.G.A.

13-14—A.P.I. Division of Marketing, Mayo Hotel, Tulsa.

19-21—Tulsa, Okla., Natural Gasoline Association of America, Mayo Hotel.

JUNE

3-4—A.P.I. Division of Production, Baker Hotel, Dallas, Tex.

Late Fields

KANSAS

The new potential gauges from the Voshell Pool, in McPherson County, were being taken the first five days in February. The gauge for February 1 was 31,838 bbls. from a total of 96 wells, 5 being off production and were estimated. Ninety of the wells were pumped and one was swabbing.

C. B. Davis and Aladdin Petroleum Corp.'s No. 1 Ritz, SE cor. SW Section 19-19-1w, in Canton area in McPherson County found top of chat at 2,965 feet, and at 3,001-07 feet the test had a show of oil and water, and was drilling deeper at 3,020 feet to test the deep pay horizon. It may extend production a half mile north in the Canton area if a commercial well is found.

The wildcat test of Aladdin Petroleum Corp. and others' No. 1 Schrag, in Section 16-27-5w, in the northeastern part of Kingman County, which had a showing of oil in the top of the Wilcox sand, was drilled deeper without any increase. The showing of oil was found at 4,222-27 feet and the test was drilling deeper at 4,248 feet, where a hole full of water was found.

In the Eastborough Pool three chat producing wells were rigging up to drill deeper to the Simpson sand horizon. The wells are offsets to the Derby Oil Co.'s No. 1 Cloud, SE cor. NW, Section 19-27-2. The wells are owned by Fisher & Lauck, Vickers Petroleum Co. and others and Blankenship Petroleum Co. The next test due to reach the chat horizon in the pool is Magnolia Petroleum Co.'s No. 1 Vickers, NW cor., Section 20-27-2, which was drilling at 2,675 feet.

Gas was found in E. M. Stiles and others' No. 1 Kasper, in Section 6-14-9w, Ellsworth County. A showing of gas was found at 1,380 feet in the 12½-inch hole. The test is estimated to be making 2,500,000 feet.

Henderson & Holden's No. 1 Somerfield, NE cor. SW, Section 23-19-1w, a wildcat northeast of the Ritz area, was drilling at 3,125 feet in Mississippi lime, finding a showing of oil in the chat.

Several tests in the Sellens Pool in Russell County were nearing the pay horizon. Signal Oil Co.'s No. 1 Rude, NE cor. SE SE, Section 28-15-13w, was drilling at 2,995 feet. The test is east of the original well in the Sellens Pool. The same company's No. 1 Sellens, south offset to the discovery well, was drilling below 2,960 feet.

Fire completely destroyed the rig at the Prairie Oil & Gas Co.'s No. 1 Hefferman, SW cor. NE, Section 26-15-13w, at a total depth of 2,230 feet. The test is west of the Sellens Pool. The rig is being rebuilt.

MICHIGAN

MUSKEGON, Mich., Feb. 3.—One of the largest oil wells ever struck in wildcat territory near the Mount Pleasant proved field of Central Michigan came in in the Leaton Pool. The new well made an initial flow of more than 450 bbls. after drillers had practically given up hopes of its making more than a 50-bbl. pumper. It is the Wittmer Oil & Gas Properties' No. 1 McKenzie, NE NE, Section 25-15n-4w, Isabella Township and Isabella County. It is about a mile east of the village of Leaton and in semiwildcat territory between the Leaton Pool and the northwest corner of the proved Chippewa Township, or original Mount Pleasant Pool. Dundee limestone was struck at 3,604 feet and pay sands at 3,642 feet. It is the second largest well in the Leaton Pool and largest completed there in nine months. There are 23 producers and 6 dry holes in and near the pool.

OKLAHOMA

A new location was announced in the extreme southwest part of the Oklahoma City Field by the Phillins Petroleum Co. and Shell Petroleum Corp. in the SW cor., Section 23-11-3w. The test, No. 1 Egermeier, will be a joint project on the Shell Petroleum Corp. lease. On the same lease the Shell Petroleum Corp. has one completed well in the northeast corner, completed several months ago for 1,950 bbls. of oil in 14 hours. The Shell farmed out 150 acres of the 160-acre lease to the Phillips Petroleum Co. for two free wells. This is the first test to be drilled. The geologists express the opinion the southwest part of the lease will be more pro-

(Continued on Page 120)

MAGNETIC FIELD QUIET

Albert K. Ludy, United States Coast and Geodetic Survey, Tucson, Ariz., advises that the earth's magnetic field has been particularly quiet for the past six or seven weeks, the latest magnetic storm having occurred December 3, 1930.

High Spots in Field News

SOUTHWEST TEXAS

Darst Creek maintains high potential.

GULF COAST

Geophysical prospect in Calcasieu Parish proved definitely.

KANSAS

Intensive activity in the Ritz-Canton area, McPherson County.

CALIFORNIA

Big wells completed, one each in Elwood Field and at Kettleman Hills.

NORTH TEXAS AND PANHANDLE

New producing area in Carson County promised. Wildcat strike in Coleman County.

OKLAHOMA

New well west of Chandler, making 100 bbls per hour, extends production one-half mile south.

ROCKY MOUNTAIN AREA

New locations northwest of Hobbs Pool. Big Sand Draw unit agreement. Show of oil at Cut Bank test.

NORTH LOUISIANA-ARKANSAS

Biggest gas well yet completed in Zwolle district. Show of oil at shallow depth in Lafayette County, Arkansas.

WEST TEXAS

Test west of discovery well in Andrews County has showing of oil. Western Crane County well flows 60 bbls. of oil and 122 bbls. of water.

EAST CENTRAL TEXAS

East Central Texas proration to be considered at meetings February 26. Joiner Pool well makes 125 bbls. first hour. Seventeen locations made. Ten derricks up and tests drilling in Bateman area. Gregg County tests closely watched.

SCORE SHEET ON OIL PRODUCTION

Below is shown allotted average daily production in the United States from October 1, 1930, to April 1, 1931, suggested by the American Petroleum Institute's special committee on the economic situation, and the actual daily average production during the week ending January 31:

	Allotted (bbls.)	Actual (bbls.)	Over (bbls.)	Under (bbls.)
Okla., Kansas, S. W. Texas, North Texas*	953,700	827,172	.....	126,528
West Texas and southwest New Mexico...	316,300	287,535	.....	28,765
North Louisiana-Arkansas	86,400	92,415	6,015	.....
Gulf Coast	177,800	179,768	1,968	.....
Rocky Mountain	58,600	58,690	90	.....
California	530,100	525,500	.....	4,600
Other fields	110,600	108,000	.....	2,600
Total	2,233,500	2,079,080	8,073	162,493

Net average daily underproduction, 154,420 bbls.

*North Texas includes North, Central and East Central Texas and Texas Panhandle.

More Crude Curtailment in Oklahoma

Cut of 23,000 Bbls. per Day, Oklahoma City Lowering Output 17,000 Bbls. per Day. Activity in Southern and Western Areas

By W. A. Spinney
Staff Correspondent, Oklahoma Fields

Production in Oklahoma during the week ending January 31 shows a decline of approximately 23,000 bbls. a day from the previous week. Most of the decline was in the Oklahoma City Field where the total production for the month declined approximately 500,000 bbls., compared to the same month a year ago. The total production from the Oklahoma City Field for the month of January, 1931, was approximately 2,318,000 bbls. compared to 2,835,500 bbls. the same month in 1930. During the month of January, 30 new wells were completed, most of these were gushers with large initial production which were produced four hours and then shut in. January was the first month under the new percentage method of proration in the Oklahoma City Field.

Umpire Ray M. Collins advises the following are the rules for the curtailment and the methods of determining potentials for the month of February, in the State. In the Class "A" pools, and leases with a potential production under 50 bbls. a day in other than Class "A" pools, the February potentials will be 98.5 per cent of the January potentials. The method of curtailment for the leases in this class will be the same as in January. The pipe line companies and purchasing companies are instructed to deduct any overages existing at the end of the month, from the February allowed production, and are further requested to send a list showing the total January shipments from each lease to the umpire. Shortages will be cancelled and leases having a shortage will be considered even on February 1. The umpire will send a list to each pipe line company showing the February potentials, daily allowed, and February allowed runs for each lease from which the different pipe line companies take the oil.

Leases that have been granted temporary exemption will be exempt for the month of February or until otherwise notified. Permission having been granted by Secretary of the Interior Wilbur to prorate production in Osage County on the same basis as the balance of the State effective January 1, shipments of oil from the Osage County leases will be reduced during February to make up overages.

February Potentials

The February potentials for the other pools in the State will be determined by deducting 3 per cent from the potentials which were in effect for the month of January. In the Allen Pool, shallow and Wilcox areas, the exceptions to the 3 per cent decline are the Sinclair Oil & Gas Co.'s Cully "A" lease, the Blackwell Oil & Gas Co.'s Fleet lease, and The Texas Company's Lewis lease from which 5 per cent will be deducted, and The Texas Co.'s Dinah lease will take a 10 per cent deduction. The other pools taking the 3 per cent decline are Bowlegs, Old Earlsboro, Little River, Lovell-Marshall, Maud, Mission, Searight, Seminole, East Seminole, St. Louis and settled production in the Carr City area, namely the Barnsdall Oil Co.'s Coker and Tully leases, the Carter Oil Co.'s wells Nos. 1 and 2 Coker, Empire Oil & Refining Co.'s Cluck lease, the Gypsy Oil Co.'s No. 1 Coker, Magnolia Petroleum Co.'s fee lease, Prairie Oil & Gas Co.'s Billington lease, Sinclair Oil & Gas Co.'s Bean and Harjo leases.

Potentials for the Earlsboro Townsite, East Little River, Sasakwa, Wanette-West Asher and Konawa Pools will be 95 per cent of their January potentials.

The Class "A" wells in the East and South Earlsboro Pools will be allowed to flow to full capacity on February 2 and the Class "B" wells on February 3. The total production from the Class "A" and "B" wells on these dates will be the potentials for the month.

The West Seminole Pool and the flush wells in the Carr City Pool will be allowed to flow to full capacity on February 2. Production from the leases in these pools on this day will be their potential for the month.

Offset operators are requested to witness the taking of potential gauges in pools where the open flow tests are required for potentials.

The potential of the 700 wells in the Oklahoma City Pool is rated at 6,100,000 bbls. a day. The potentials of the wells that are shut in for the 65-day period will not be available until the wells are opened for their regular producing period. It is impossible to take a potential gauge of the Oklahoma City Pool at one time.

Gas Pressure Declining

A survey of the Oklahoma City Field reveals the gas pressure is declining. It is estimated the gas-oil ratio in the Oklahoma City Field is 3,000 feet of gas to each barrel of oil produced.

The loss of the gas energy now occuring in the field is believed to be caused by the way the wells are cased and operated. There is an excess of gas being produced in the field over the amount that can be used.

A recent survey of the Oklahoma City Field shows 154 wells to be making water in varying quantities. Thirty-four of these are producing from the sand horizon and some of these have been plugged back in attempts to shut off the water. One hundred twenty of the Silicious lime wells were making water.

New Work in Southern Fields

In the Tatums Pool in Carter County locations for two new tests were announced during the week. Magnolia Petroleum Co.'s No. 4 Dickerson, SW cor. NE, Section 24-1s-3w, is a location on the east edge of production, and the east offset to the same operator's No. 2 Dickerson, which made 2,400 bbls. initial production. The other location was announced by the Carter Oil Co. and others' No. 2 Hooks, NE cor. SE NE, Section 24-1s-3w, on the north edge of the field.

Magnolia Petroleum Co.'s No. 9 Gill, SW cor. SE NE, Section 23-1s-3w, was coring at 2,066 feet. The top of the sand was found at 2,060 feet where a showing of oil was found. Same operator's No. 3 Carter, NW cor. SE SW, Section 14-1s-3w, was shut down waiting for cement to set at 2,525 feet. Same operator's No. 1 McCrory, SE cor., Section 10-1s-3w, northwest of production in the area, has been plugged back from a total depth of 3,520 feet to 2,550 feet. A production test will be made of sand found at 2,353-83 feet, where a showing of oil was found.

Stephens County oil areas are still active. A new producer is expected in the Comanche district, and a new location was announced during the week. G. Pace's No. 8 Watkins, SE cor. NE SE, Section 21-2s-7w, was drilling in sand at 1,722 feet. The test is a location north of the same operator's 600-bbl. completed a few weeks ago. Cooper and others' No. 1 Duncan, NW cor. NE, Section 28-2s-7w, is a new location. It offsets a 12-bbl. well completed several weeks ago by Carter Oil Co. and is south of G. Pace's Watkins lease.

G. Pace's No. 4 Dilly, NW cor. NE NW SW, Section 27-2s-7w, 2 miles east of Comanche, is being plugged and abandoned at 1,503 feet after failing to plug off the water in the sand.

A. L. Andree and others' No. 1 Patrick, CNL SE SE, Section 3-3s-8w, a wildcat is shut down for water at 1,370 feet. Wylie and others' No. 1 Wilson, NW cor. SW, Section 2-2s-5w, found a showing of oil at 1,719-24 feet and was drilling deeper at 1,770 feet. Junior Oil Co.'s No. 1 Thompson, NE cor. SW SE, Section 1-1-7w, a wildcat was drilling below 2,700 feet. Crane and Rankin's No. 1 Adkins, NE cor. SE, Section 14-1-9w, a wildcat was drilling at 2,620 feet.

W. O. Smythe and others' No. 2 House, NW cor., Section 29-2-8w, an offset to a small wildcat producer completed about a year ago by the same operators, is being abandoned at 2,800 feet. Several other wildcat tests were shut down including Ross Southard and others' No. 1 McKinney, NE cor., Section 25-1-8w, was shut down at 1,063 feet. Obermeyer and others' No. 1 Skelton, NE cor. SW SW, Section 32-1s-7w, was shut down at 1,375 feet. Paul Turner and others' No. 1 Andrews, NW cor. SW SW, Section 5-2s-7w, was shut down at 1,827 feet.

In Comanche County, Max Pray and others' No. 1 Cline, NE cor., Section 8-3-10w, a twin, to a wildcat producer found 1,500,000 feet of gas at 435 feet where it blew out and caught fire. It did a small amount of damage before being shut in. The twin is being drilled for fuel.

George Pace's No. 1 Pruitt, C SW SE, Section 8-1-9w, a wildcat, is shut down at 2,042 feet in hard lime.

A Cotton County test was drilling after testing a showing of oil and water. Shasta Oil Co.'s No. 1 Tilley, NE cor., Section 23-1s-10w, a wildcat was drilling at 2,500 feet. A showing of oil and water was found at 2,360-75 feet. Gilbert and Lowery's No. 1 Forney, C SE SE, Section 4-2s-11w, a wildcat, was drilling at 1,250 feet.

In the Oklahoma City Pool

New operations in the Oklahoma City Field were getting under way at six new locations staked by Hall & Briscoe and Champlin Refining Co. and a pair locations by the Morgan Petroleum Co. in the north and northwest part of the field. All of these tests are expected to be started within the next week. Several new large wells were completed in the Oklahoma City Field during the week.

The new 8-inch pipe line of the Continental Oil Co. from the main line near Tonkawa, to the Oklahoma City Field, is being tested and is expected to be in full operation early this month. The Empire Pipe Line Co.'s gathering system in the field will be used to gather the oil until the Continental Oil Co. can build a gathering system.

The following wells were completed during the seven days ending January 31: Tom Slick Oil Co.'s No. 2 Frisco, NE cor. SE, Section 3-11-3w, flowed 3,791 bbls. in four hours from the Wilcox sand at 6,171-6,359 feet. Same operator's No. 4 Classen, SE cor. NW NW, Section 2-11-3w, flowed 8,883 bbls. in four hours. Century Petroleum Co.'s No. 1 McConnell, NW cor. SW NW, Section 2-11-3w, flowed 8,856 bbls. in four hours from the Wilcox sand at 6,185-6,341 feet. Phillips Petroleum Co. and Shaffer's No. 1 Ashcan, NE cor., Section 3-11-3w, flowed 8,583 bbls. in four hours from the Wilcox sand at 6,277-6,457 feet. Same operators' No. 1 Black, NE cor. NW, Section 10-11-3w, flowed 8,896 bbls. in four hours from the Wilcox sand at 6,325-6,500 feet. Anderson & Prichard Oil Corp.'s No. 1 Rayhill, NW cor. NE, Section 10-11-3w, flowed 7,473 bbls. in four hours from the Wilcox sand at 6,316-6,485 feet. Same operators' No. 1 Westfall, SE cor. NW NE, Section 3-11-3w, made 6,400 bbls. in four hours from Wilcox sand at 6,288-6,434 feet. The gas was estimated at 29,000,000 feet a day. Dengall

WILDCAT OPERATIONS IN OKLAHOMA

(Descriptions are East and North unless marked otherwise)

NORTHERN OKLAHOMA

ALFALFA COUNTY

Company, farm and location—	Remarks:
Smith Brothers' No. 1 Forbes, SE cor. NW NW Sec. 12-27-11w	Shut down 1,232 ft.
J. W. Bailey's No. 1 Acre, SW cor. NE Sec. 14-24-11w	Drlg. 4,970 ft.

ATOKA COUNTY

Edgerton-Edwards' No. 1 Roland, C NW Sec. 9-1-15	Drlg. 750 ft.

BECKHAM COUNTY

Price-McFann's No. 1 Webster, C SW SW Sec. 34-8-26w	Shut down 765 ft.
Mid-Continent's No. 1 Schaff, C NE SW Sec. 22-11-22w	Waiting on cement to set 480 ft.
Mid-Texas Co.'s No. 1 Sidell, NE cor. SW SW Sec. 17-2-22w	Shut down 2,550 ft.
White et al's No. 1 Green, SW cor. Sec. 34-10-24w	Drlg. 2,660 ft.

BLAINE COUNTY

Washoma Oil Co. et al's No. 1 Phillips, C NW SW Sec. 13-19-10w	Shut down 4,590 ft.

CADDO COUNTY

Magnolia's No. 1 White, SW SE Sec. 25-6-10w	T. D. 5,012 ft.; plugged back to 3,065-3,100 ft.; abandoned.
Abernathy & Brown's No. 2 Houston, Sec. 24-6-13w	Shut down 1,115 ft.

COAL COUNTY

McGraw Oil Co.'s No. 1 Ward, NE SE Sec. 35-1-8	Rig.
Whitney et al's No. 1 Miller, SE NE Sec. 10-2-8	Shut down 760 ft.

COMANCHE COUNTY

Croy & Young's No. 1 Cline, NW NE NE Sec. 8-3-10w	Shut down 2,221 ft.
G. W. Stogner's No. 1 Doebel, C SW SW Sec. 3-3-9w	Shut down 1,450 ft.

CREEK COUNTY

Burton-Holmes et al's No. 1 Sankeye, SE SW SW Sec. 5-18-10	Drlg. 500 ft.

GARFIELD COUNTY

E. L. Love et al's No. 1 White, SE cor. NW Sec. 9-24-6w	Drlg. 5,835 ft.

GRADY COUNTY

J. V. Bailey's No. 1 Hubbard, C NE NW Sec. 1-10-6w	Shut down 100 ft.
Holden's No. 1 Phillip, SE cor. Sec. 3-9-18e	Shut down 1,860 ft.
Marion Oil's No. 1 Sanders, NW NE NW Sec. 10-9-18e	Shut down 2,387 ft.

GREER COUNTY

French's No. 1 Murphy, SW NW Sec. 23-7-21w	Drlg. 1,490 ft.

HARMON COUNTY

Harmon-Tex Oil Co.'s No. 1 Hoadley, NE cor. Sec. 17-4-24w	Shut down 2,593 ft.
S. M. Stauffer's No. 1 Castleman, SW NE Sec. 8-4-26w	Shut down 625 ft.

HARPER COUNTY

Empire's No. 1 Bruce, C NE SW Sec. 12-25-20w	Shut down 7,935 ft.
Sinclair Oil & Gas Co.'s No. 1 Howell, C SW SW Sec. 14-23-24w	20,000,000 ft. gas 5,350-5,400 ft.; total depth 8,589 ft.; shut down; sprayed 50 bbls. gasoline.

HASKELL COUNTY

Ault et al's No. 1 Harrison, CWL SE NE Sec. 14-9-19	Shut down 650 ft.
Ault et al's No. 1 Hall, NW SW SW Sec. 14-9-19	Shut down 2,000 ft.

(Continued on Page 126)

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Oil Co.'s No. 1 Hile, NE cor. NW, Section 10-11-3w, flowed 5,200 bbls. in 2 hours and 25 minutes from the Wilcox sand at 6,247-6,498 feet. Indian Territory Illuminating Oil Co.'s No. 3 Pasadena, NW cor. SW, Section 14-11-3w, flowed 1,781 bbls. of oil in eight hours from Wilcox sand at 6,240-6,521 feet.

Western Developments

Barnsdall Oil Co.'s No. 1 Miksch, NW cor. SW, Section 12-21-1, a wildcat near Perry, in Noble County, found water in the Wilcox sand at 4,923-26 feet, and is being abandoned. The test also found water at 4,850-52 feet.

Champlin Refining Co.'s No. 1 Wanberg, NE cor. NW, Section 36-22-4w, south of Garber in Garfield County, has 2,000 feet of oil in the hole. The well is cleaning out and bailing. The oil was found in the chat at 5,152-5,202 feet.

Noble County continues to be one of the most active areas in the northern and western parts of the State. Prairie Oil & Gas Co.'s No. 1 Upperman, SW cor. NW, Section 22-22-2, in the Otoe district of Noble County, was drilling deeper in lime at 3,550 feet. The test had a showing of oil in the Layton sand at 3,301 feet but with deeper drilling the showing exhausted. Same company is rigging up for a test at No. 1 Ezzard, NW cor. SW SE, Section 4-20-1w. Other operations in the area were the Magnolia Petroleum Co.'s No. 1 Roberts, NE cor. SE, Section 21-21-2w, in the new Magnolia Pool, was a rig. Same company's No. 2 Young, SW cor. NW, Section 22-21-2w, was drilling at 1,620 feet. Same company's No. 2 Summers, SE cor. SW NW, Section 4-20-1w, was drilling at 2,920 feet.

Twin State Oil Co.'s No. 1 Stewart, SE cor. NE, Section 5-20-1w, was rigging up. Washoma Petroleum Co. and others' No. 1 Otoe, SE cor. NE, Section 22-22-1, was moving in tools.

Empire Oil & Refining Co.'s No. 2 Freyler, SW cor. NE, Section 4-20-1w, in the Waltermeyer Pool, is making 3,500,000 feet of gas from 3,442-44 feet, but may be mudded off and drilled to the Wilcox sand horizon.

In the eastern part of Kay County, northeast of the producing area in the Mervine Pool, Peters Petroleum Co. and others' No. 1 Hayes, NW cor. NE NW, Section 24-28-3, is nearing the pay horizons at 2,000 feet. Wilright Gas Co. and others' No. 1 Wildegrube, NE cor. SW, Section 14-27-1, is drilling near the Layton sand at 2,850 feet. L. E. Mummert Drilling Co. and others' No. 1 McCormick, C NW SE, Section 9-27-2, was drilling below 2,700 feet. Blankenship Petroleum Co. and others' No. 1 Smith, C NW NE, Section 6-28-1, was shut down at 2,625 feet. The test is located near the old Blackwell Field. Same operators' No. 1 Hollenbeck, SW cor. NE SE, Section 18-27-2, was spudding.

In Greater Seminole

Mid-Continent Petroleum Corp.'s No. 1 Harjo, SW cor. NE NW, Section 6-5-6, a wildcat south of the Konawa Pool, in Seminole County, was showing oil and gas in the shallow horizons. The test cored the showing of oil at 2,111-17 feet in sandy shale. Should oil be found in commercial quantities in the test it will extend the producing area approximately a mile south in the Konawa Pool, or open a new producing area in the extreme southern part of the county.

A new location was announced during the week in the Konawa Pool by A. J. Diffie and others' No. 1 fee, NW cor. SE NW SE, Section 29-6-6. The test is located on a 10-acre tract east of the Sinclair Oil & Gas Co.'s well.

During the week the shallow test of Droppleman and others, No. 1 Lack, SW cor. SE NW, Section 30-8-8, in the Wewoka Townsite Pool in Seminole County, was flowing all salt water. The total depth of the test was 2,175 feet, where it had flowed 4,000 bbls. of fluid of which about 200 bbls. was oil and the balance water. The oil exhausted and the operators are planning to mud off the water and may drill the test deeper. Same operators' No. 1 A. Lack, SW cor. SE NW, Section 30-8-8, a twin well, flowed 1,950 bbls. in 24 hours from the Cromwell sand at a total depth of 3,144 feet.

Greater Seminole Production

The production from the Greater Seminole area for the week ending January 26, averaged 193,163 bbls. a day from 2,863 wells. The first 12 pools listed below comprise the Seminole area, which averaged 128,406 bbls. a day from 1,870 wells.

Pool—	Wells	Bbls.
Little River	369	21,858
East Little River	82	10,474
Carr City	78	12,721
Maud	133	2,945
Mission	93	6,077
Bowlegs	278	12,176
Earlsboro	283	16,191
South Earlsboro	27	7,839
East Earlsboro	158	17,937
Seminole	254	13,006
East Seminole	33	1,967
Searight	82	5,215
Total	1,870	128,406
Allen	276	12,813
Asher	26	747
Wanette	54	3,069
Konawa	111	17,840
Sasakwa	50	4,166
St. Louis	474	21,122
Grand total	2,863	193,163

Greater Seminole Shipments

The pipe line shipments from the Greater Seminole area totaled 180,359 bbls. for the week ending January 26. The daily average shipments by companies from the various pools were as follows:

Company—	Seminole (bbls.)	St. Louis. Pearson. Asher (bbls.)	Konawa (bbls.)
Barnsdall	2,380	....	....
Champlin	3,822	....	540
Consolidated	....	2,527	....
Cosden	6,499	....	3,077
Deep Rock	2,932	755	....
Empire	6,578	....	....
Gulf	14,371	3,667	977
Magnolia	7,297	5,569	4,486
Oklahoma	20,072	205	217
Phillips	1,786	....	....
Prairie	3,961	2,330	688
Prod. & Ref.	1,399	....	....
Pure	7,777	....	....
Shell	5,041	181	1,382
Stanolind	24,049	6,108	4,274
Texas	9,183	4,822	2,154
Tidal	5,615	3,664	....
White Oak	1,364	....	....
Total	128,116	29,828	17,795
Tank cars	3,952	668	
Grand total	132,068	30,496	

Oklahoma City Shipments

The total crude oil shipments from the Oklahoma City Field for the week ending January 26 were 577,605 bbls., a decline of 32,649 bbls. a day from the previous week. The total shipments by companies were as follows:

Company—	Bbls.
Capitol	750
Anderson-Prichard	23
Champlin	2,157
Empire	18,898
Magnolia	8,798
Oklahoma	13,769
Prairie	508
Shell	819
Sinclair	8,544
Stanolind	17,251
Sunray	436
I.T.I.O.	6,636
Tidal	3,531
Wilcox	397
Total	82,515

Carter County

Carter Oil Co. and others' rig is up for No. 2 J. Hooks, NE cor. SE NE, Section 24-1s-3w, Tatums Pool.

Hughes County

McGee Brothers moved a machine in for No. 1 Deer, SE cor. SW SW, Section 3-9-10.

Latimer County

Limestone Oil & Gas Co. is building the rig for No. 1 Kilpatrick, C SE SE, Section 16-5-18.

Muskogee County

D. L. T. Oil Co. and others' No. 2 L. Mackey, SW cor. SE SW SW, Section 9-15-18, is preparing to deepen from 816 feet. W. J. Metzger's No. 5 J. McDaniel, NW cor. SE SE, Section 6-14-19, has been completed for 20 bbls. in sand 825-63 feet.

Noble County

The Prairie Oil & Gas Co. and others' No. 1 Green, NE cor. SE NW SW, Section 22-22-1e, is a rig under construction. Magnolia Petroleum Co. is building the rig for No. 1 Robertson, SE cor. NE SE, Section 21-21-2w.

Garfield County

Mid-Kansas Oil & Gas Co. and Ramsey Petroleum Corp. made location for No. 1 Heitholt, NW cor. SE SE, Section 33-24-3w.

Logan County

Blackwell Oil & Gas Co.'s No. 1 Quigley, SE cor. NW SW, Section 21-18-4w, Lovel Field, is rigging up to deepen from 3,905 feet.

Oklahoma County

Indian Territory Illuminating Oil Co. staked location for No. 6 M. K. & T., NW cor. SW SW, Section 35-12-3w, Oklahoma City Pool. Champlin Oil & Refining Co. and Hall & Briscoe's No. 1, Block 7, Lots 40 and 41, Central Addition, is rigging up. No. 1, Lot 37, Block 15, Central Addition, NE cor. SW SE, Section 3-11-3w, is a cellar. The cellar has been dug for No. 1, Lot 40, Block 19, Central Addition, NE cor. SW SW SE, Section 3-11-3w. Hall & Briscoe has the cellar dug for No. 1, Lots 40 and 41, Block 9, Central Addition, NE cor. NW SE SE, Section 3-11-3w. The rig is up for No. 1, Lots 35 and 36, Block 16, Central Addition, NE cor. SE SW SE, Section 3-11-3w. The rig is also up for No. 1, Lots 13 and 14, Block 18, Central Addition, SW cor. SE, Section 3-11-3w. Phillips Petroleum Co. has the cellar dug for No. 1, Lots 41 and 42, Block 23, Walnut Grove Addition, SE cor. SW SE NE, Section 3-11-3w. Danciger Oil & Refining Co.'s No. 1 Burruss, Lot 9, Block 31, Schilling Addition, SE cor. SW, Section 10-11-3w, is a cellar. Mid-Kansas Oil & Gas Co.'s No. 1 Messer, SW cor., Section 32-14-3w, has been completed for 312 bbls. in Wilcox sand 6,698-6,771 feet. T. B. Slick estate's No. 4 Classen, SE cor. NW NW, Section 2-11-3w, has been completed for 18,338 bbls. in 21½ hours from Wilcox sand 6,247-6,538 feet. Phillips Petroleum Co. and Shaffer Oil & Refining Co.'s No. 1 Ashcan, NE cor., Section 3-11-3w, made 8,583 bbls. in four hours from Wilcox sand 6,277-6,457 feet. T. B. Slick estate's No. 1 Frisco, NE cor. SE, Section 3-11-3w, made 9,822 bbls. in 6⅔ hours from Wilcox sand topped at 6,255 feet, total depth 6,424 feet. Anderson & Prichard and Phillips Petroleum Co.'s No. 1 Rayhill Community, SW cor. NW NE, Section 10-11-3w, topped Wilcox sand 6,316 feet, total depth 6,500 feet made 7,473 bbls. in four hours. No. 1 Wright, SW cor. NE SW NE, Section 10-11-3w, has been completed for 5,927 bbls. in four hours from Wilcox sand 6,300-6,438 feet. Blackwell & Jones Drilling Co.'s No. 1 Schilling Community, SE cor. NE NE SW, Section 10-11-3w, has been completed for 7,319 bbls. in Wilcox sand 6,325, total depth 6,540 feet. Dengail Oil Co.'s No. 1 Schillings, NW cor. SE SE, Section 10-11-3w, made 11,586 bbls. in sand 6,307-6,512 feet. Westgate Oil Co.'s No. 1 Kelsey, CEL SW SW NW, Section 10-11-3w, has been completed for 6,539 bbls. in eight hours in Wilcox sand 6,405-82 feet. Indian Territory Illuminating Oil Co. and others' No. 5 Lemmon, NE cor. NW SE, Section 11-11-3w, made 269 bbls. in eight hours from sand 6,278-6,539 feet. Indian Territory Illuminating Oil Co. and others' No. 3 Pasadena Heights, NW cor. NE SW, Section 14-11-3w, had sand 6,270-6,521 feet and made 1,781 bbls. in eight hours.

Okmulgee County

Keithley & Smith's No. 3 Harris, SE cor. NE SE, Section 1-14-14, is rigging up. D. M. Logan's No. 1 Pigeon, SE cor. NE, Section 31-15-13, is drilling at 930 feet. Miller and others moved a machine in for No. 1 Kemyarye, SE cor. NW NW, Section 32-15-13.

Pittsburg County

Mid-Western Oil & Gas Co.'s No. 2 Trekell, C N half NE NW, Section 14-7-18, is rigging up. Choctaw Gas Co.'s No. 1 Hendrickson, SW cor. NE SE, Section 8-7-18, made 12,000,000 feet of gas in sand 1,825-2,124 feet.

Pottawatomie County

Arms Drilling Co. made location for No. 1 Duff, NE cor. NW SW, Section 10-7-4. Gypsy Oil Co.'s No. 4 Horn, NE cor. NW NE, Section 23-6-3, West Asher Pool, is rigging up.

Seminole County

Magnolia Petroleum Co.'s No. 2 Hyde-Swan, NW cor. SW SE, Section 29-6-6, is rigging up. Gypsy Oil Co.'s No. 2 Charty, SE cor. SW, Section 29-6-6, Konawa Pool, is rigging up. Ligon & Todd's No. 1 Wilson, NW cor. NE, Section 30-8-8, Wewoka Townsite Pool, made 117 bbls. at 3,300 feet after plugging

(Continued on Page 92)

REPORT OF OPERATIONS IN NEW YORK-PENNSYLVANIA GAS AREA

OIL CITY, Pa., Jan. 31.—The Oil City Derrick says: The following survey of field work in the new natural gas field in northern Pennsylvania and western and southern New York was made this week, and shows the status of drilling wells at the time they were visited:

Well No. 1 on the Howe farm in Farmington Township, Tioga County, Pennsylvania, is shut down temporarily after finding 500 feet of water at a depth of 4,391 feet. This operation is being conducted by the Lycoming Natural Gas Corp. Its second well in Lawrence Township, on the L. E. Shoemaker farm, has reached a depth of 4,040 feet. The No. 3 well is down 2,700 feet on the F. A. Askley farm in Clymer Township near Sabinsville. The well on the Taft farm in Steuben County, New York, near Woodhull is being drilled at a depth of 2,130 feet.

No. 2 well of the North Penn Gas Co. on the Harry Kemp farm close to the discovery well in Farmington Township, is down 4,384 feet. On the Bostwick farm in Lawrence Township, Tioga County, J. E. Trainer and others are drilling their third well at a depth of 3,136 feet. The Penn-Ohio Co. is operating on the E. W. Close in Farmington Township, Tioga County, at a depth of 3,025 feet. On the William Bache in Middlebury Township, a location has been made by Queen-Flaherty. The cement is not yet hard in the crooked hole 2,700 feet deep on the Ben Meeker in Tioga Township, being drilled by Bendel and others. A local company has made a location on the John Tuton in Wells Township, Bradford County. On the Adams farm in Charlestown Township, Tioga County, Adams and others are hauling a rig to deepen an old well which once reached a depth of 3,800 feet. William Seger is drilling on the James Birtch in Brookfield Township, Tioga County, at a depth of 3,500 feet. The Penn-Ohio Co. drilling on the Edith Price in Farmington Township, Tioga County, has reached a depth of 550 feet. A location has been made, and rig is being erected on the Katherine Harrison in Lawrence Township, Tioga County, by the Leonard Oil Co. A location has been made on the Mellett farm at Wells, Bradford County, by the Mosherville Oil & Gas Co.

In New York Fields

On the Roy Perkins in Addison Township, Steuben County, New York, Benedum-Trees, drilling at a depth of 3,928 feet, are running casing.

Cady and others are "fishing" at 3,370 feet on the William Kress farm in Reading Township, Schuyler County, New York, for tools. Benedum-Trees are drilling at 4,380 feet on the William Hager at Catherine, Schuyler County. A company at Watkins Glen, N. Y., is planning to drill an old hole at that point, at a depth of 3,350 feet. Benedum-Trees on the Edwin Cole farm at Troupsburg, Steuben County, New York, have made a location. The Cunningham Drilling Corp. are drilling at 3,200 feet on the Guy Ford at Howard, Steuben County. On the J. C. Mahoney farm at Ledyard, Cayuga County, New York, where the Reserve Oil Corp. is drilling at a depth of 2,581 feet, the rig burned and is being replaced. This company has a well down 3,294 feet at Lansing, Tompkins County, New York, on the James Farkas and are underreaming.

Abandoned Tests

The Belmont Quadrangle Drilling Corp. is abandoning its drilling on the D. L. Kunes at Gorham, Ontario County, New York, having reached 2,641 feet. The Republic H. L. & P. Co., on the Fouter at Bristol, Ontario County, has

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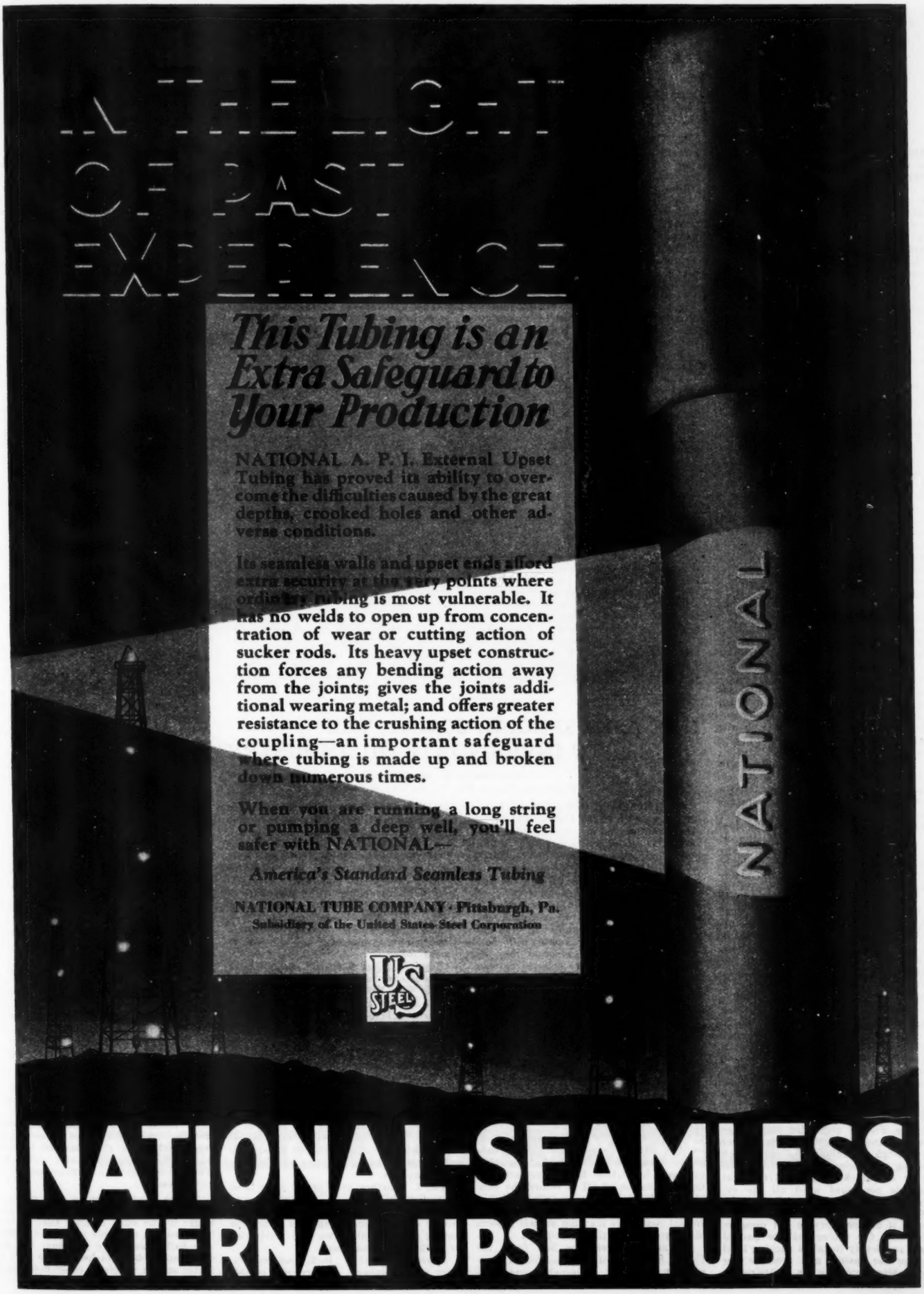
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Current Practice in Well Cementing

Fundamentals of Cement and Mid-Continent Methods of Cementing Casing and Making Repairs in Oil Wells

This is the second and concluding portion of an article of which the first installment was published January 29.

1. Cementing through casing with plugs—The most effective way of cementing through casing is by the two-plug method. This consists of placing a bottom cementing plug in the casing ahead of the cement and a top plug after the cement, thus enclosing the cement between the two plugs. This method has been the basic standard of both the Perkins Cementing Co. in the California and Rocky Mountain area and the Halliburton Cementing Co. elsewhere.

At the time this method was first introduced the use of float valves in the pipe was unknown. The first plug was pumped out of the casing, and the second plug stopped on top of the first plug, but the upper part of the top plug remained inside the casing, thus stopping the pump and indicating that the cement was on the outside of the casing. Later, the use of float valves in the pipe created a demand for a specially designed bottom plug that would stop on top of the float valve and yet would allow the cement to pass by. Some operators discontinued the use of the bottom plug when using float valves in the pipe. However, the two-plug method claims for its advantage that the cement remains uncontaminated while the cement is being pumped down the casing. Besides using the two plugs, the Halliburton method, by use of the measuring line, continuously measures the position of the top plug during its descent. This measuring method can be used either alone or in combination with a barrier or float collar placed near the bottom of the casing, which indicates the arrival of the top plug at that point by stopping the pump. With this procedure the measuring line will indicate the position of the cement in case the top plug is prematurely stopped by a casing leak. It is also useful in checking up errors in pipe tallies.

2. Cementing through tubing—In the tubing method of cementing the essential feature is the pumping of the slurry through a string of tubing instead of directly into the casing.

This method has the advantage that once the tubing is in the hole, the cement can be placed faster than by any other method. The running and pulling of the tubing, however, is a time-consuming process and must be completed within the time required for the cement to set. There are, however, conditions in a well, such as in repair work, where only the tubing or dump bailer methods could be used.

Cementing through tubing may be accomplished by several methods, or combinations of them, the variations depending upon the particular job to be done.

(a) Gravity method of plugging back through tubing—The cement is pumped into the tubing, which is bottomed at the desired point in the well. The circulating fluid is then run into the tubing on top of the cement until the tubing fills up and the returns stop, which will indicate that equilibrium has been reached and the cement has equalized. The tubing is then pulled up to a point just above the desired point for the top of the cement and circulation started either down through the tubing and up between the tubing and casing, or vice versa. The latter is the quicker way and this circulation is continued until all the excess cement is washed out of the hole. The tubing is then pulled.

Should it be necessary to put pressure on the well, the tubing may be packed off by a previously installed packing head placed on the casing, and pressure put on the tubing or casing, as is desired.

(b) Siphon method of plugging back through tubing—This is very similar to the gravity method and can be used especially where water is the circulating fluid. The tubing is connected to the discharge end of the cement pump. Care should be exercised that all connections are perfectly air tight. The cement is then mixed to the desired consistency and started down the tubing by means of the pump. As soon as a sufficient quantity has entered the tubing it starts a siphoning action. As the last of the cement is about to enter the pump suction, water may be turned into the suction box and allowed to siphon into the tubing until equilibrium has been reached. The tubing is then either raised and the excess cement circulated out of the hole, or removed.

This method can be used in some cases where it is not justifiable to use a power pump to place the cement, or to move in a sand reel and string up a bailer.

(c) Tubing methods using plugs—In using a plug or plugs when cementing through tubing, the bottom of the tubing is usually equipped with some kind of a fitting to stop the plug. The simplest procedure is to place a swage on the bottom of the tubing. The plug should be made of soft wood, and pointed so that the end will wedge securely in the swage.

The procedure is the same as cementing with one plug through casing. When the plug reaches the swage, the pump is stalled by the jamming of the plug into the swage. Should it be necessary to put pressure on the cement, the tubing is withdrawn to a safe distance from bottom, and the top sealed. Pressure is put on the casing through a suitable connection below the packing head.

Two plugs may be used by placing a bull plug in the end of the tubing and perforating the tubing about 3 feet from the end. The first plug should be sufficiently short so that when the bottom of the plug reaches the bottom of the tubing, the top of the plug will be below the perforations. The top plug should have a flexible disc on top and be long enough to reach from the top of the first plug to a point above the perforations. As soon as the plugs come together the perforated outlet will be closed and the pump will stall, indicating that the cement is out of the tubing.

The disadvantage of the above use of plugs in cementing through tubing is that the tubing cannot be washed out after the cement has been run. There are several ways, however, of altering the above methods to allow the plug or plugs to be forced out of the tubing after the cement is out of the tubing. One way is to have the tubing, before cementing, just a few inches off bottom and follow up the cement with a wood plug several feet long and with a fabric disc on top. When this plug passes partly out of the tubing it strikes the bottom of the hole and shuts off the pump at the surface. The tubing is then raised and the plug pumped out, after which the excess cement can be washed out of the hole. If necessary, this can be varied to use two plugs, the first plug being very short and pumped out of the tubing ahead of the cement.

In some cases the use of a plug is justifiable, if not necessary. This will be seen in the following paragraphs under pressure methods.

(d) Tubing methods using pressure—The pressure method of cementing through tubing may be divided into two parts:

A. With cement retainer—A cement retainer is a packing device used to run on the end of the tubing, making a tight seal between the tubing and the casing, so that cement may be pumped through the tubing and behind the casing or into formations without danger of any cement getting between the tubing and the casing.

The retainer is built of cast iron, and is attached to the bottom of the tubing by means of a left-hand nipple. The retainer is lowered to the desired point in the casing, at which point the retainer is "set" by raising the tubing several inches. This engages a set of slips with the casing, and a further tension on the tubing spreads a rubber packer against the casing, making a tight seat. The retainer is equipped with a valve constructed so that cement may pass through the retainer, but upon releasing the pressure on the tubing the cement will not flow back.

It is necessary, when attempting to use this device, that there be some circulation or movement of fluid behind the casing or into formations. The reason is obvious.

The procedure, after the possibility of circulation or movement of fluid has been established, is to run the tubing and set the packer. Before any cement is pumped in, circulation should again be established to make sure that everything is in order and that the packer is not leaking. Cement is then pumped through the tubing to the desired place in the hole. The tubing is then disconnected from the retainer by turning the tubing to the right, and then is thoroughly washed out. The retainer, being made of cast iron, is easily drilled up after the cement has set.

Two advantages of this method are as follows: First, the top of the cement can be established at any point in the casing; and second, it does not take a great amount of circulating fluid to place the cement, as would be the case were the casing method used.

B. Without cement retainer—Cementing through tubing with pressure and without a cement retainer is necessary where circulation is poor, or impossible. While it has often been stated that it is useless to try and cement where fluid movement is very difficult, even to a small extent, quite often a water shut-off may be obtained by placing the cement through tubing and exerting a pressure on it. If the time element will allow, the excess cement can be washed out of the hole by circulating with a back pressure of several hundred pounds.

3. Cementing through rotary drill pipe—Cementing through rotary drill pipe is essentially the same as cementing through tubing, except that the use of plugs is difficult, due to the constrictions at the tool joints.

The gravity or siphon method is the most common method of placement used. Pressure may be applied quite readily, as with tubing, using a suitable packing head between the drill pipe and the casing. A cement retainer device can also be used when necessary.

Cementing through drill pipe has an advantage over tubing in that the pipe can be handled a great deal faster than tubing. If desirable, the drill pipe can be rotated while the cement is being placed.

4. Dump bailer method—This method was the first one used for cementing casing in oil wells. The method is simple and satisfactory for cable tool work where very small quantities of cement are necessary.

As the heading implies, the cement is "dumped" in the hole by means of a bailer in the same manner that water is "dumped" in dry hole cable tool drilling. The bailer may be a sectional one with a "dump stick" attached to the dart, or, better still, a specially constructed bailer

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NYE ASKS SPECIAL COMMITTEE TO INVESTIGATE OIL INDUSTRY

By Charles E. Kern

Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Feb. 2.—It has become a habit of the United States Senate to authorize any investigation that may be asked for by its members. Several resolutions are now before the committee on audit for estimates of expenses and reports will be made on all of them during the coming week. Senator Nye's resolution providing for an investigation of the oil industry will be reported and there is little doubt that it will eventually be passed by the Senate with such amendments as other senators may desire. Many senators are opposed to resolutions for investigations but their disapproval usually results only in a few remarks. They do not like to be placed in the light of defending any interest that may be attacked by an investigation and that is likely to determine the fate of the Nye resolution.

Of course there will not be enough time for this investigating committee to make a complete report during the present short session of Congress but there is time to allow the special committee to function by calling on many leaders of the oil industry and getting some of them on the witness stand. They may have their committee at work by the time proposed legislation for an embargo on the importation of oil is before the Senate and House of Representatives. If that is the case there is no reason why the special committee may not submit reports of progress from time to time.

No assurance can be had from the United States Tariff Commission of a report on prices of Venezuelan and Mid-Continent oil delivered at New York before February 17, the limit of the eight months allowed by the Senate resolution calling for that information. The commission states, however, that it is working diligently to get the report to the Senate by that day. The report may cover as many as 100 pages and it will give statistical tables and very full explanations in replying to the Senate's questions.

Nye Resolution

The complete text of the Nye resolution for an investigation of the oil industry follows:

Resolved, That a special committee of five senators shall be forthwith appointed by the Vice President, and said committee is hereby authorized and instructed to investigate and report to the Senate as early as possible:

First. The cause or causes of the low price of crude oil in the United States and the margins between the price of crude oil and the selling price of the products of crude oil.

Second. Whether said conditions have resulted in whole or in part from any contract, combination, in the form of a trust or otherwise, or conspiracy in restraint of trade and commerce among the several states and territories or with foreign countries.

Third. Whether said prices have been controlled, in whole or in part, by any corporation, joint stock company, or corporate combination engaged in commerce among the several states and territories or with foreign nations.

Fourth. Whether such corporation, joint stock company, or corporate combi-

(Continued on Page 104)

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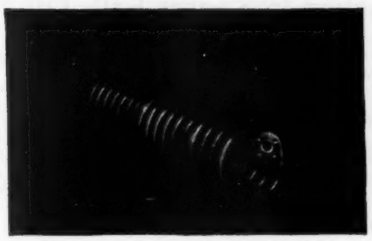

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THE GREATER MIDWEST PIPING SERVICE

Proposes Unitization of Ritz-Canton

Stanolind Oil & Gas Co. Submits Plan to Operators. Production in Kansas Falls Off 3,000 Bbls. per Day

By W. A. Spinney
Staff Correspondent, Kansas Fields

Kansas production for the week ending January 31, was approximately 103,950 bbls. a day. The daily average indicates a decline of approximately 3,000 bbls. a day from the previous week.

The Prairie Oil & Gas Co. announces it has shut down 437 of its producing wells in the State. The company, in shutting down its own wells is following its general policy of shutting down where offsetting production is without a pipe line outlet.

The Hugoton gas field in Stevens and Morton Counties is expected to show considerable increase in activity with the beginning of the spring. The Texas-Interstate Gas Co. has announced 10 new locations for the area and if these find commercial gas production it is estimated the potential of the field will be more than 800,000,000 feet of gas a day.

The Stanolind Oil & Gas Co., in a letter to operators in the Ritz-Canton areas in McPherson County, proposes the unit system of operation of the production in the area. At the present time the production is being curtailed to pipe line capacity but the "take" is not on a pro rata basis.

The proposed plan of operation would divide the area into 40-acre units for the purpose of allocating production. If more than one well is drilled to 40 acres, the potential production for the unit would be rated according to the well average and not according to the potential production. The unit potentials would be allocated according to the pipe line outlet. It is proposed by the Stanolind Oil & Gas Co. the plan be adopted February 1.

According to the umpire's report the potential production of the Ritz Pool, January 1 was 35,578 bbls. from 23 wells. The pipe line outlet at that time was 5,700 bbls. a day, or approximately 16 per cent of the potential. Since January 1, The Texas Company has completed a 4-inch pipe line from the Ritz Pool to the Empire Pipe Line Co.'s pump station in the Voshell Pool, increasing the pipe line outlet for the area approximately 5,000 bbls., bringing the total to 10,700 bbls. a day.

The production has also been increased during the same time approximately 5,000 bbls. a day by new wells.

Harvey County Tests

Washoma Petroleum Co. and Shell Petroleum Corp.'s No. 1 Zook, C NW SW, Section 36-22-2w, Harvey County, found the top of the chat at 2,965 feet and at 2,976-77 feet a showing of gas, where the test is shut down.

Alco Royalty Co. and others' No. 1 Heibert, NE cor. SE SE, Section 5-22-3w, Harvey County, found a showing of oil at 3,216 feet and another at 3,256 feet and the 6-inch casing is being underreamed to 3,547 feet, to shut off water found with the second showing.

Jones and the Shell Petroleum Corp.'s No. 1 Lehman, C NW NW, Section 36-22-2w, Harvey County, is spudding.

The Phillips Petroleum Co. and Prairie Oil & Gas Co.'s No. 1 Bean, NE cor. SE, Section 10-30-17w, Kiowa County wildcat, may be abandoned at a total depth of 5,383 feet. It was the deepest drilling test in the State. Phillips Petroleum Co. also announced it may abandon another wildcat test, the No. 1 Cuthberton, NE cor., Section 27-20-18w, Pawnee County. The test is shut down at a total depth of 4,257 feet.

Tests Show Oil

Another oil pool was in prospect during the week in Harvey County as the result of finding oil in a test 6 miles north of Burrton. In Phillips Petroleum Co. and others' No. 1 Cone, NW cor. NE, Section 31-22-3w, oil rose 2,700 feet in the hole from the chat formation at 3,220-97 feet, and preparations were being made to give the well a swabbing test. The test first gave indications when 1,000,000 feet of gas was found at 2,257 feet. The 5-inch casing was landed 3,262 feet and the first oil was found at 3,275 feet. When the test was drilled 3,281 feet oil rose 1,200 feet in the hole in eight hours, and when deepened to 3,283 feet oil rose to 2,200 feet, substantially increasing with deeper drilling. It was again drilled deeper to 3,297 feet with no apparent increase in the oil and no indication of water. To the north of the well lies the Voshell Pool, in McPherson County. When tested it swabbed less than a barrel an hour and was drilling deeper at 3,327 feet.

Another wildcat test showing oil is Henderson and Holden's No. 1 Somerfield, C NE SW, Section 23-19-1w, 1½ miles east of the Canton in McPherson County, and 5 miles northeast of production in the Ritz-Canton areas. The test was spraying oil and making between 1,000,000 and 2,000,000 feet of gas from the chat at 2,925-34 feet. It was drilled deeper to 2,968-70 feet and is estimated to be making 20 bbls. of oil an hour and 4,500,000 feet of gas a day.

Decker Gas Area

The Decker gas field in McPherson County is fast becoming one of the largest potential gas areas in the State. At the present time the field has 19 completed gas wells with an estimated potential of 450,000,000 feet of gas a day.

The gas area was extended during the week by the completion of a new well by R. Youker and others, No. 1 Grattan, SE cor. SW SW, Section 24-19-1w, which found 9,000,000 feet gas and spray of oil in the chat at 2,917-52 feet. It extends the producing area to the east.

On the west side of the Decker gas area in McPherson County the first oil well was completed by E. K. Cary and Shell Petroleum Co., No. 1 Smith, C NE SW, Section 15-19-2w, flowing at the rate of 20 bbls. of oil an hour from the chat at 2,928-70 feet. It is the first oil well in the area and is shut in on account of the lack of a pipe line connection.

Two-Mile Extension

During the week a 2-mile extension to the Canton-Ritz Pool in McPherson County, was found when Darby Petroleum Co.'s No. 1 Kaegi, NE cor., Section 20-19-1w, found 2,000,000 feet of gas, and west of the other production in the area. The gas sand was found at 2,935 feet and the 6-inch casing has been cemented preparatory to drilling into the formation. The test indicates the existence of a large producing area in the territory. The Darby Petroleum Co. has a 680-acre block surrounding the gas showing.

Another test finding a showing of gas in the chat was the W. C. McBride, Inc. and Stanolind Oil & Gas Co.'s No. 1 Lovett, C NW SW, Section 13-19-2w, McPherson County. The test topped the chat at 2,900 feet and the showing of gas was found at 2,902 feet. The casing is being cemented at 2,903 feet before it is drilled deeper.

C. B. Davis and Aladdin Petroleum Corp.'s No. 1 Ritz, SE cor. SW, Section 19-19-1w, in the Canton area of McPherson County, was expected to reach the chat horizon in a few days. It was drilling at 2,820 feet. The test is located a half mile north of the discovery deep sand well in that area.

Scattered Wildcats

In the Lost Springs area in Marion County, two operations were under way. The field discovered four years ago by Harwood & Winters has been extended during the last few weeks, increasing the activity in the area. Harwood Oil Co.'s No. 1 Mott, SW cor. SE NW Section 11-17-4, in the most northern test in the area and was spudding. It is the north offset to the same operators' No. 1 Coleman well, which extended production a quarter mile to the north. The other test in the area is Youker's No. 2 Riffel, SW cor. Section 11-17-4, drilling at 500 feet.

The fourth test well for Ellsworth County was announced during the week by the Wolf Creek Oil Co. It is No. 1 Sturm, NW cor. SE Section 31-17-9w, on a large block of acreage. The well will be drilled to a total depth of 3,500 feet on a turnkey contract. The test is more than a mile southeast of the Slick, Pryor & Lockhart and others' No. 1 Heiken, which is estimated at 2,000 bbls. a day from the Silicious lime but is shut in. The test is also believed to be located on the Barton Arch.

Flo and others' No. 1 Davis, C SE SW Section 27-7-26w, Sheridan County, south of the Nebraska-Kansas state line, was spudding.

Schleymeir and others' No. 1 Clark, SW cor. NE NE Section 19-9-25w, Graham County, is drilling at 1,600 feet in a new hole.

Sampson and others in No. 1 Sudenderf, NE cor. SE Section 30-14-2w, Saline County, found a hole full of water at 2,705-25 feet and were underreaming the 8-inch casing.

T. C. Johnson and Atlantic Oil Producing Co.'s No. 1 Wright, SE cor. NE Section 11-12-27w, Gove County wildcat, is fishing at 4,402 feet.

E. W. Marland, Inc.'s No. 1 Barecky, C NW Section 3-16-10w, Ellsworth County, is drilling at 3,000 feet. The test is located east of the Prairie Oil & Gas Co.'s wildcat well in the northeastern part of Barton County. Aladdin Petroleum Co. and others' No. 1 Stoddenberg, C SW Section 22-16-10w, was shut down at 1,130 feet. Alyward and others' No. 1 Stratman, SE cor. NW SE Section 1-17-10w, was also shut down at 50 feet.

Butler County

Mauk and others' No. 1 Skaer, CWL NE NW, Section 30-27-5, is spudding.

Cowley County

Roth & Faurot has the rig up for No. 4 Brant, SW cor. NE, Section 12-32-4. Fisher and others moved a machine in for No. 1 Hunt, SW cor. SE SE, Section 11-34-3. Hough and others' No. 1 Thurlow, SW cor. SE, Section 35-32-4, has been abandoned at 735 feet. Pyle and others' No. 1 Pauden, C SE NE, Section 16-35-4, has been deepened to 1,888 feet and abandoned.

Ellsworth County

Gilmore Oil Co. is building the rig for No. 1 Sturm, NW cor. SW, Section 31-17-9w.

Gove County

Valerius, Boucher and others' No. 1

(Continued on Page 104)

WILDCAT OPERATIONS IN KANSAS

(Descriptions are East unless marked otherwise)

Company, farm and location—	Remarks:
BARBER COUNTY	
Allison & Fitzwilliams' No. 1 Kumberg, SE SW SE Sec. 2-30-12w	Drig. 4,790 ft.
BARTON COUNTY	
Syndicate Oil Co.'s No. 1 Boertz, NW SE SE Sec. 13-18-12w	Shut down 50 ft.
Skelton Oil Co.'s No. 1 Ott, C SE SE Sec. 16-19-14w	Shut down 1,800 ft.
McCool et al's No. 1 Tsern, NW SE NE Sec. 12-20-11w	Shut down 1,600 ft.
BUTLER COUNTY	
Farrell et al's No. 1 Sutton, NW cor. Sec. 18-28-7	Drig. 2,100 ft.
CLARK COUNTY	
Watchorn's No. 2 Morrison, NW NE Sec. 20-32-21w	T. D. 6,909 ft.; plugged back to 6,530 ft. to test show gas; S. D.
CLAY COUNTY	
Crystal Oil et al's No. 1 Tivier, SW cor. Sec. 19-8-2	Shut down 2,390 ft.
COFFEY COUNTY	
Heyburg's No. 1 Kroft, SE SW SE Sec. 30-22-14	Shut down 1,300 ft.
Roberts et al's No. 1 Hay, SW SE NW Sec. 32-22-15	Shut down 1,250 ft.
COWLEY COUNTY	
Roth & Farout's No. 1 Reedy, SW NW NE Sec. 8-32-8	Shut down 1,040 ft.
Tom Fine's No. 1 Boyd, NW NE Sec. 23-32-4	Shut down 2,650 ft.
DICKINSON COUNTY	
Severs et al's No. 1 Lavengood, NE SW Sec. 13-13-2	Shut down 3,460 ft.
ELLSWORTH COUNTY	
Hershey et al's No. 1 Schultz, C NE Sec. 9-14-8w	Rig.
Alyward et al's No. 1 Stratman, SE NW SE Sec. 1-17-10w	Shut down 50 ft.
Aladdin Pet.'s No. 1 Stoddenberg, C SW Sec. 22-16-10w	Shut down 1,130 ft.
Milton et al's No. 1 Kester, SE NE Sec. 6-14-9w	Drig. 575 ft.
Aladdin and Carter Oil Co.'s No. 1 Barecky, C NW Sec. 3-16-10w	Drig. 2,905 ft.
FORD COUNTY	
Swain et al's No. 1 Taylor, C NW Sec. 21-25-24w	Shut down 4,315 ft.
GOVE COUNTY	
Johnson and Atlantic's No. 1 Wright, SE NE Sec. 11-12-27w	Fishing 4,402 ft.
Valerius & Baucher Oil Co.'s No. 1 Todd, NW cor. Sec. 24-13-27w	T. D. 4,813 ft. in dolomite; abnd.
GRAHAM COUNTY	
Schleimeyer et al's No. 1 Clark, SW NE NE Sec. 11-9-25w.	Fishing 3,790 ft.
HARPER COUNTY	
Beeler et al's No. 1 Bear, C NE Sec. 21-36-6w	Shut down 1,830 ft.
HARVEY COUNTY	
Empire-Shell's No. 1 Showalter, NW SE Sec. 23-23-2w	Rig on ground.
KINGMAN COUNTY	
Skelly Oil's No. 1 Miles, NE cor. Sec. 30-27-10w	1,635-40 ft. 2,000,000 ft. gas; at 2,005-20 ft. 6,000,000 ft. gas; at 2,133-42 ft. 3,000,000 ft. gas; showing oil 3,385 ft.; T. D. 3,441 ft.; S. D.; estimated at 800 bbls. a day.
KIOWA COUNTY	
Phillips-Prairie's No. 1 Bean, NE SE Sec. 10-30-17w	Drig. 5,328 ft.
McKenna et al's No. 1 Ralston, C NE Sec. 14-28-20w	Rig.
LYONS COUNTY	
Griffith et al's No. 1 King, NW cor. Sec. 8-19-10	Shut down 910 ft.
MARION COUNTY	
Aladdin Pet.'s No. 1 Koch, NW NE Sec. 36-17-3	Rig.
Midwell's No. 1 La Master, NW cor. Sec. 31-22-4	Shut down 650 ft.
McPHERSON COUNTY	
United Pet. Co.'s No. 1 Kaigi, NE cor. Sec. 20-19-1w	Drig. 2,800 ft.
Henderson & Holden's No. 1 Sommerfield, NE NW Sec. 23-19-1w	Drig. 2,917 ft.
Aladdin Pet.'s No. 1 Rudolph, NW NE Sec. 36-18-3w	Rig.
Slick et al's No. 1 Randall, C SW SW Sec. 35-17-3w	Drig. 2,782 ft.
Aladdin Pet. Co.'s No. 1 Larson, C NW Sec. 22-18-4w	Rig.

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Darst Creek Maintains High Potential

Shows Little Material Change Since November. Field Looks Like as Good an Ultimate Producer as Luling or Bruner

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., Feb. 2.—The surprise of the week was the result of the last gauge of Darst Creek, which showed a potential for the field of practically 160,000 bbls. in 24 hours, compared with a potential gauge of 165,558 bbls. from 232 wells on November 29. The gauge was not complete as this was written though only three wells were not reported in the list and these estimated would bring the potential to about the figure here given. The number of wells is only slightly more than two months ago.

The three Edwards lime pools have produced more than half of all the oil produced in Southwest Texas thus far, and Darst Creek is the only one that has been on proration, with the exception that the Bruner Field, after the flush had gone off, was restricted a little. The Darst Creek Field promises to be at least as good as the other two and may ultimately prove better. Possibly if the others had been on proration and restricted flow they would have held up as well. Somewhat of a comparison is shown by the figures herewith.

Old Luling Field the first two years with unrestricted flow produced 16,449,630 bbls.

Bruner Field the first 15 months produced 13,841,170 bbls., open flow.

Darst Creek the first 14 months produced 11,741,261 bbls. on restricted flow.

It is claimed that the Darst Creek Field is also showing less water than the other two fields have shown and the Empire Gas & Fuel Co. wells on the last gauge showed an increase, the eight wells gauging 2,613 bbls. daily, compared with 2,451 bbls. on November 29. Also the Witherspoon well shows a potential of 900 bbls. daily, compared with 750 bbls. on November 29.

Early in the lime of the old Luling Field the presence of water was a big problem and a serious one because the volume was so great. In the Darst Creek Field 18 Texas Company wells on the Knoblock lease show less than 20 per cent water and 6 wells on the Henry Willie lease about 22 per cent water. Experience with the Edwards lime shows that water is a beneficial factor in recovering the oil.

Was a Quiet Week

So far as field operations are concerned it was a quiet week in Southwest Texas with several wells completed in the Chapman Field but with nothing new or startling, and most of the wildcats that last week were about to show something have not yet done so.

Installing Gas-Air Lift

In Live Oak County in the Cartwright gas field where Houston Oil Co. has been wrestling with the problem of deep oil production, the company is installing gas-air lift in its No. 1-A Boothe, which has been swabbing 100 to 150 bbls. of oil a day from sand at 5,370-77 feet. It is the only oil well in the area. The test is a few hundred feet north of nearest gas production in the field. The company's No. 22 Cartwright, plugged back from 6,028 feet to around 1,600 feet, is still being worked on in the hopes of making a gas well of it. Producing gas sand in the field is below 2,000 feet. While the company has not succeeded in a big way to develop deep sands, it has had enough success to encourage more effort.

In Kerr County the new tests announced last week are progressing with a little additional hole but are weeks away from the point where they are likely to run into something. It is cable tool country, with lots of rock.

Evans & Gant are still working with their No. 1 Jeff Love, the well that came in in a spectacular manner and drenched the landscape with oil and is responsible for all the new development work. The lead wool plug in the bottom of the hole put in to keep the water out, and which has been working up into the well, has been drilled out and the company is now trying to handle the water situation and rework the well in an effort to make a good producer of it.

Simms in Bee County

Simms Oil Co. succeeded in recementing the casing in the No. 2 Holzmark in the Simms Pool in Bee County and early this week was ready to drill the plugs and test the proposition out all over again. No. 1 Holzmark, the first test drilled on the block, came in a big gas well at 3,552 feet. No. 2 was drilled much deeper but got nothing better, and was plugged back and the casing shot. The crew has since been working with the test trying to complete it. The field was a discovery of 1930 and is about 15 miles south of the Pettus Field.

T. B. Slick estate expected to spud in this week at No. 1 Allen, first test started since the bringing in of the discovery well, 20 miles northeast of Pettus. No. 1 Poetter, discovery well, is still shut in, but the successful completion as a good oil well has started development and has put new hope in tests along the same line of play northeast and southwest. One of these, the Fort Bend Oil Co.'s No. 1 Newberry, a few miles north and a trifle east of the Pettus Field, had a lot of gas and some oil before the Slick well was drilled and it looked at times as though it was sure to be at least a gas well. It had about 4,000,000 feet in sand at 2,972-92 feet but went into salt water at 3,054 feet. It will be carried down to around 4,000 feet. The Slick well produced at 4,212 feet and there is production through the Pettus area at around 4,000 feet and below.

Another test a little off this line of play is the Gibson Oil Co.'s No. 1 Parks, 5 miles northeast of the city of Goliad, which has been standing at 5,104 feet, having reached contract depth. It has lately been showing some gas and this has determined the owners to rig up and bail and they are preparing to do that now.

Among the tests that have had more than ordinary attention and which promise to become producers is the Moody-Seagraves' No. 1 Smith, in the Saxet area, west of Corpus Christi in Nueces County. It drilled to 4,961 feet and is now plugging back to 4,060 feet and will try and complete as a gas well.

Southwest Texas Production

Daily average production of the pools in the Southwest Texas area for the week ending January 31 follows:

Agua Dulce	37
Bexar County	325
Branyon	22
Bruner	14,103
Buchanan	106
Chapman	5,498
Dale	260
Darst Creek	33,164
Kingsville	120
Larremore	15
Luling	9,190
Lytton Springs	733
Manford	150
McMullen County	20
Medina County	22
Mirando district*	14,245
Normanna	28
North Pettus	298
Pettus	7,634
Saxet	183
Somerset	1,338
S.R.C.-Vacuum	140
White Point	41
Yoast	185
Total	87,857
Week ending January 24	84,906
Increase	2,951

*Includes Charco-Redondo, Jennings and Mirando Valley, Zapata County; Albercrass, Aviator, Caroline-Texas, Mid-O juelos, Schott and Wolcott, Webb County; Alworth, Henne-Winch-Fariss and Randado of Jim Hogg County; Cole, Driscoll, Kohler, Schoolfield-O'Byrne of Duval County.

Penn's Second Well

Penn Oil Co. set casing in the No. 2 Cooksey in eastern Bexar County and may have an oil well by another week. The No. 1 Cooksey opened a new shallow pool at 1,460 feet. The No. 1 Kosub, drilled northeast of it, was dry but the No. 2 Cooksey has set casing at 1,374 feet with total depth of hole, 1,391 feet, and it looks as though it would be a small well like the No. 1 Cooksey. It is producing from the Taylor marl.

In northern Duval County, Al Buchan-

(Continued on Page 104)

SOUTHWEST TEXAS PROVEN AREAS

UNIT POOL—BEXAR COUNTY

Company, farm and location—	Remarks:
Penn Oil Co. No. 2 Cooksey, 400 ft. NE No. 1	T. D. 1,391 ft.; setting csg.

DOBROWOLSKI POOL—BEXAR COUNTY

Morgan Bros.' No. 3 Masterson, 300 ft. S of No. 2 Masterson, Miguel Gortaris Sur.	T. D. 550 ft.; set csg.
F. H. Eckert's No. 1 Dobrowolski, 400 ft. from W line, 150 ft. from S line of lease, Sur. No. 52	Location.
W. R. Swearingen's No. 2 Halberdier, 300 ft. SE of No. 1, J. Perege Sur.	T. D. 460 ft.; standing.
A. J. Swearingen's No. 6 Sandemer, 600 ft. S of No. 1, M. Manchaca Sur.	Location.
A. J. Swearingen's No. 7 Sandemer, 300 ft. S of No. 6, M. Manchaca Sur.	Location.

BRUNER POOL—CALDWELL COUNTY

Joe Bruner's No. 1 Malone, A. Floyd Sur.	T. D. 50 ft.; spudded.

EDDINGTON POOL—FALLS COUNTY

Eddington et al's No. 2 Llewellyn, George Allen Sur.	T. D. 700 ft.; drlg.

DARST CREEK FIELD—GUADALUPE COUNTY

Humble Oil's No. 21-A Denman, A. S. Emmett Sur.	T. D. 2,410 ft.; drlg.
Magnolia Petroleum Co.'s No. 6 Klein, 300 ft. S No. 3	T. D. 2,648 ft.; comp. for 500 bbls. pumping.
Magnolia Pet. Co.'s No. 7 Klein	Location.
Sun Oil Co.'s No. 13 Knoblock	Rigging up.
F. L. Thomson's No. 2 Posey, 25 ft. from NW line, 300 ft. from No. 1	Location.

CHAPMAN POOL—WILLIAMSON COUNTY

W. D. Anderson's No. 6-A T. P. Simmons	Rig up and shut down.
Anderson's No. 7 M. V. Lawrence, Simon Miller Sur.	T. D. 1,810 ft.; comp. for 250 bbls.
W. D. Anderson's No. 8 M. V. Lawrence	Location.
Bartlett & Wilson's No. 2 R. E. Stewart	T. D. 790 ft.; standing.
Bartlett & Wilson's No. 1 R. E. Stewart	T. D. 741 ft.; standing.
Birdwell et al's No. 2 Simmons, Harrison Owen Sur.	T. D. 2,140 ft.; comp. for 20 bbls.
Chapman et al's No. 1-D Abbott	Location.
Chapman et al's No. 2-D Abbott	Location.
Chapman et al's No. 5-D Abbott	T. D. 1,833 ft.; comp. for 30 bbls.
Chapman et al's No. 7-D J. C. Abbott	T. D. 1,820 ft.; comp. for 25 bbls.
Chapman et al's No. 2-E Sides	Location.
Chapman's No. 2-F Sides	T. D. 1,860 ft.; comp. for 200 bbls.
Collins et al's No. 6 Lawrence	Location.
J. L. Collins & Co.'s No. 7 M. V. Lawrence, 150 ft. from E line, 215 ft. from S line of 27-ac. tract in the S. Miller Sur.	Setting csg.; shut down for water.
Ertell et al's No. 6 J. C. Abbott	T. D. 2,620 ft.; comp. for 2 bbls.

(Continued on Page 89)

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

ATASCOSA COUNTY

Company, farm and location—	Remarks:
Cullen and Boren's No. 1 Medina Irrigation, W. Klemke Sur. No. 439	Location.

BLANCO COUNTY

H. L. Lewis' No. 1 Glasscock, moving in to drill on leases out of the Rodson block north of Blanco City	T. D. 500 ft.; shut down.
Hardy-Sitton's No. 1 McMillan	T. D. 570 ft.; shut down (depth corrected).
Liles-Adams et al's No. 1 Stanford, 150 ft. to S line, 1,420 ft. to E line of James Stanford's No. 155	T. D. 800 ft.; drlg.
McCleary et al's No. 1 Schenling, 900 ft. to SE line, 600 ft. to S line of J. A. Rouse No. 118 Sur., 4 miles SW from Blanco City	T. D. 562 ft.; drlg. shale.
J. R. Meek's No. 1 Walker, 360 rds. from W line, 482 rds. from S line of 375-ac. tract in Sur. No. 32	T. D. 1,025 ft.; fishing.
G. Rosenfield's No. 1 Hohenberger, 800 ft. to W line, 1,250 ft. to N line, Sur. No. 94	T. D. 712 ft.; drlg.

BASTROP COUNTY

Majestic Pet. Co.'s No. 1 J. M. Breeding, 160 ft. from N line, 1,020 ft. from W line of 200-ac. tract, 940 varas from W line, 1,225 varas from S line of M. Andrews Sur., 13 miles W from Smithville	T. D. 375 ft.; standing.

BELL COUNTY

Mildon Oil Co.'s No. 1 J. K. Edds, Maxiano Moreno Sur.	Derrick.
J. W. Riley et al's No. 1 J. W. Mosely, Maxiano Moreno Sur.	T. D. 1,030 ft.; shut down; hole full water.

BROOKS COUNTY

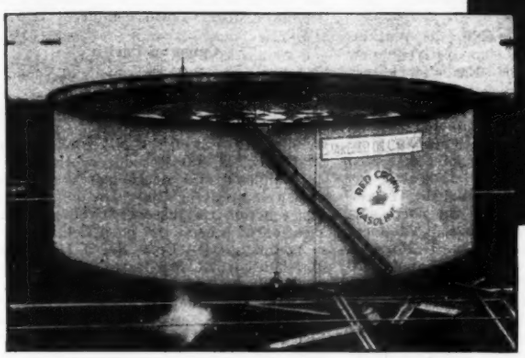
Ed East's No. 3 B. Garcia, 150 ft. from N and W lines of Blk. 5, Share A-1, Las Mastena y Gonzalene grant	T. D. 1,002 ft.; standing.

BEE COUNTY

Hurlbut et al's No. 1 Mrs. D. Chestnut	T. D. 5,010 ft.; shut down.
E. S. Price's No. 1 Weiss, 200 ft. each way out of NW cor. of B.&B. Sur.	T. D. 4,423 ft.; preparing to swab.
E. S. Price's No. 2 Weiss, 900 ft. due SW of No. 1 Weiss, B.&B. Sur.	T. D. 4,546 ft.; testing.
E. S. Price's No. 3 Weiss, 900 ft. due NE of No. 1 Weiss.	Location.
Moody-Seagraves Producing Co. and Independent Oil & Gas Co.'s No. 1 Welder, 6,280 ft. from S line, 8,150 ft. from E line of Welder tract, Henry Eyles Sur.	T. D. 5,305 ft.; abnd.

(Continued on Page 89)

Right: This illustration of a Pontoon Roof on a terminal tank shows construction details . . . the roof consists essentially of a ring of pontoons surrounding a single plate center section and the standard Wiggins seal at the tank shell. Below: Another view of the same roof.



Latest developments in Wiggins Floating Roof combine new desirable features

Pontoons add insulation, in heavy non-sinkable construction » » » » »

Group of refinery tanks equipped with Wiggins Floating Roofs. They reduce evaporation loss and fire hazard.

A NUMBER of important improvements have been made in the design and construction of the Wiggins Floating Roof.

The new roof consists essentially of a ring of pontoons with a single plate center section. Contact with the tank shell is made by means of the standard highly efficient Wiggins seal.

This provides a floating roof of heavy, non-sinkable construction. The pontoons insulate the vapor space at the tank shell, making the seal more effective. They also insulate the oil surface, reducing the temperature. Sinking is prevented; at the same time the advantage of heavy plate construction is retained. The pan type floating roof is of course available for those not requiring the insulation feature.

Filling and emptying loss is stopped by the floating action of the roof. The metal rides directly on the oil surface, minimizing corrosion. The type of construction used enables the Pontoon Floating Roof to stand up under severe service.

Our nearest office will gladly furnish complete details and quote you on installations to suit your requirements.

CHICAGO BRIDGE & IRON WORKS

Dallas	3341 Magnolia Bldg.	Cleveland	2204 Midland Bank Bldg.
Houston	1119 Electric Bldg.	New York	3147 Hudson Terminal Bldg.
Tulsa	2406 Exchange Bank Bldg.	Philadelphia	1615 Jefferson Bldg.
Birmingham	1536 Fiftieth St., N.	Boston	1517 Consolidated Gas Bldg.
Chicago	2128 Old Colony Bldg.	San Francisco	1054 Rialto Bldg.
Detroit	1514 Lafayette Bldg.	Seattle	4323 Smith Tower

WIGGINS FLOATING ROOFS

Geophysical Prospect Definitely Proved

Calcasieu-Jefferson Davis Parish Test Is Successfully Completed Making 250 Bbls. of Oil and 4,000,000 Feet of Gas

By Neil Williams
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., Feb. 2.—The Iowa geophysical prospect on the Calcasieu-Jefferson Davis Parish line, southern Louisiana, was definitely proved as another Gulf Coast field by the successful completion of Vacuum Oil Co.'s No. 1 Watte as a commercial well. This well on a three-hour gauge Friday afternoon flowed 75 bbls on a half-inch choke, or at the rate of 600 bbls. daily. The flow then was pinched to a three-eighths-inch choke and has been making steadily 250 bbls. of pipe line oil daily with an estimated 4,000,000 feet of gas.

The new producer is in a sandy shale at a total depth of 5,008 feet with one joint of 7-inch screen in the hole. Due to high pressures, the drill stem has been left in the hole and the oil is coming through both the drill stem and the 9⅝-inch casing, which was set at 4,985 feet. The well has a working pressure of 1,350 pounds on the drill stem and 1,100 pounds on the casing. Temperature of the well is 54° and the gravity of the oil is 29.9° (corrected for temperature). So far there is no trace of water.

This is the first test drilled on this prospect, which was discovered by Shell Petroleum Corp. by seismograph exploration in 1929. The prospect, however, was checked additionally by Vacuum and others. Location of the test is 225 feet each way out of the SE cor., Section 12-9s-7w. The east line of the section is the parish boundary. Shell and Vacuum own virtually the entire prospect, the block of the former being to the south and east of that of Vacuum. Shell made location early in 1930 for a test on its acreage but this (No. 1 Heyd, Section 13, Jefferson Davis Parish) never was drilled although material for a derrick was moved on the ground.

The Iowa prospect is about 12 miles to the east of Lake Charles and 15 miles from the Lockport Field, southwest of Lake Charles, which is being developed by Vacuum Oil Co. jointly with Gulf Refining Co. Vacuum Oil Co. has a large tank farm at Lockport with terminal facilities for tanker and barge loading and will be able to handle the new Iowa production readily at that point.

First indication of a possible field at Iowa was given during the preceding week when this test tried to blow out while setting screen. At that time three joints of drill pipe were blown from the hole, damaging the derrick and necessitating a delay in completion of the well while derrick was being rebuilt.

Refugio Comeback

With this exception there were no completion developments of any importance on the Gulf Coast the past week. At Refugio in the lower coastal country, Moody-Seagraves-Smith's No. 3-A Mission-O'Brien on the east edge of the field added another good 6,400-foot well to the field. In sand at 6,447-59 feet, 23½ feet of screen was set and the well came in flowing 1,008 bbls. of pipe line oil in the first 24 hours on one-quarter-inch and three-eighths-inch chokes and with pressures of 1,150 and 1,200 pounds on the tubing and casing, respectively.

Continued development and proving up of this 6,400-6,500-foot horizon on the east side of the Refugio area is staging a comeback for the field. Following the proving up of the old 3,700-foot area in the field after the first three or four months of 1930, deep sand operations were rewarded only with mediocre results; daily production dropped off rapidly and interest in the field subsided. However, the last two months has seen a renewal of activity, especially in the deepening of the shallower sand wells; development has resulted in more successful proving up of the area, and through the steady addition of new wells daily production is being built up gradually and again is above 30,000 bbls. This is despite the fact that operations are being restricted for the most part to necessary drilling and production of individual wells is being held in.

Barbers Hill Increase

Barbers Hill is another Gulf Coast Field in which daily production again is increasing steadily after recent sharp declines although most development and production is being held to a minimum. Drilling through the "overhang" around the dome for subsalt production together with the proving of the circle of production around the west flank of the dome has resulted in the completion of a steady string of good wells which has been reflected in the field's total daily output.

Considerable new activity has been starting up on the west flank of the Barbers Hill Dome within the past two weeks where work is being centered on proving an unbroken line of production from the extreme west to the southwest. A half dozen rigs now are running in that area alone. There were no completions at Barbers Hill the past week but many of the deep wells are nearing the producing horizons. On the northwest flank, Humphreys Corp.'s No. 10-A Kirby promises an important extension northward around the dome. It is in an oil sand at 6,348-65 feet and is waiting on cement to set before drilling in and setting screen.

Other Completions

At Lockport, Calcasieu Parish, Vacuum Oil Co. completed its No. 28 Miller flowing 600 bbls. of fluid, 75 per cent oil, from sandy shale at 3,861 feet. One joint of screen was set. Production is on a half-inch choke and pressure is 250 pounds.

Calcasieu Oil Co.'s No. 25 Watkins further proved the comparatively new shallow pool on the East Hackberry Dome. This play has been marked by the addition of a steady series of good wells. No. 25 Watkins was completed flowing 1,050 bbls. on a half-inch choke from sand at 2,837-47 feet, one joint of screen being set.

Other completions included Wilson-Broach's No. 6 Wilson on the north side of Vinton, flowing 190 bbls., 3,319 feet; Smith and associates' No. 1 Parsons, Pierce Junction, a workover, pumping 10 bbls., 4,229 feet; Superior Oil Corp.'s No. 3 Boyles, Pierce Junction, flowing 725 bbls. on a three-eighths-inch choke, 4,305 feet; Kipley Oil Co.'s No. 1 Prudential Development Co., Pierce Junction, deepened from 3,857 feet to 4,329 feet, flowing 1,200 bbls. on a half-inch choke; Humble Oil & Refining Co.'s No. 12 Thompson, Raccoon Bend, flowing 287 bbls. on a three-quarters-inch choke, 3,456 feet; Humble Oil & Refining Co.'s No. 1 Sergent, Moss Bluff, a workover, pumping 150 bbls., 5,860 feet; Rio Bravo Oil Co.'s No. 108-A Cotton, Saratoga, flowing 35 bbls., 457 feet, and Chicago Gulf Co.'s No. 2 Lee, Edna, estimated 25,000,000 feet dry gas, 1,800 pounds pressure, 4,105 feet.

Humble Oil & Refining Co. so far has failed to make a well in its No. 1 Gehring at Mykawa, south of Houston, Harris County. With 30 feet of screen set in sand at 4,873 feet, the well is swabbing with fluid 800 feet from the top. It made two small heads but would not flow. It is probable Humble will try to deepen the hole. This well offsets to the west No. 3 Minnetex, the first commercial oil producer at Mykawa, completed late in 1930.

Cameron Parish

In Cameron Parish, Louisiana, Vacuum Oil Co. has made location for its second test on its Cameron Meadows salt dome prospect. This test, 3,120 feet south and 1,900 feet west of the NE cor., Section 21-14s-9w, is 500 feet due south of No. 1, completed two weeks ago as a small gas well spraying 100 bbls. of fluid, 2 per cent oil, the discovery well gives indication of becoming a good field.

Yount Lee Oil Co.'s No. 9 Housierre-Latrielle, 5,978 feet east and 720 feet north of the SW cor., Section 47-9s-2w, southeast of the old Jennings Field, Acadia Parish, and the second deepest test ever drilled on the Gulf Coast, experienced its second blowout late in the week. In a sand at a total depth of 8,653 feet, the well tried to blowout last November while drilling. This gas was killed successfully but drill stem stuck and has necessitated a long fishing job. The hole had just been cleaned and a string of casing was being run in the hole when the second blowout occurred. This also has been killed.

Gulf Coast Production

Daily average production of the pools in the Gulf Coast area for the week ending January 31 follows:

TEXAS	
Allen	136
Barbers Hill	23,608
Batson	1,066
Big Creek	2,834
Blue Ridge	1,405
Brenham	143
Boling	932
Clay Creek	2,260
Damon Mound	583
DeWalt	11,872
Esperson	2,919
Fannett	1,000
Goose Creek	4,368
Hankamer	2,301
High Island	1,056
Hull	7,155
Humble	10,236
Lost Lake	384
Markham	208
Moss Bluff	681
Mykawa	218
Nash	379
North Dayton	676
Orange	2,130
Orchard	2,375
Pierce Junction	8,831
Port Neches	1,526
Raccoon Bend	8,561
Refugio	30,008
Rockland	4
Saratoga	1,056
Sour Lake	2,012
South Liberty	2,735
Spindletop	12,714
West Columbia	4,322
Total Texas Coast	152,694
Week ending January 24	152,897
Decrease	203

SOUTH LOUISIANA	
Anse La Butte	67
Bayou Blue	60
Bayou Bouillon	103
Black Bayou	1,011
Edgerly	456
Jennings	679
Hackberry	3,740
Lake Barre	3,463
Lake Pelto	157
Lockport	5,004
Port Barre	1,737
Sorrento	24
Starks	668
Sulphur	1,990
Sweet Lake	1,135
Vinton	5,723
Welsh	72
White Castle	985
Total Louisiana Coast	27,074
Week ending January 24	27,661
Decrease	587
Total Gulf Coast	179,768
Week ending January 24	180,558
Decrease	790

GULF COAST FIELDS AND WILDCATS

Week Ended January 31

All Rotary

BARBERS HILL—CHAMBERS COUNTY

Mills Bennett Prod. Co.'s No. 1-B Barber, north	Drlg. water sand 4,315 ft.
Mills Bennett Prod. Co.'s No. 5 Riggins, southeast	Drlg. broken rock 1,736 ft.
Mills Bennett Prod. Co.'s No. 1 Gulf-Smith	Drlg. shale 5,300 ft.
Humphreys Corp.'s No. 2-B Barber, north	Drlg. salt 2,630 ft.
Humphreys Corp.'s No. 1 Louise Fitzgerald, north	Total depth 5,379 ft. in salt; drill stem stuck; sidetracked at 1,700 ft. and drlg. salt 2,534 ft.
Humphreys Corp.'s No. 2 Wilburn, southeast	Drlg. sandy lime 1,232 ft.
Humphreys Corp.'s No. 10-A Kirby (workover)	Sand and shale showing oil 6,348-65 ft.; total depth 6,466 ft.; cmtd. 7-in. csg. 6,351 ft.
McAlbert Oil Co.'s No. 3 Woodward, east flank	Rig standing.
Rio Bravo Oil Co.'s No. 2 Fisher, west flank	Spudded.
Sun Oil Co.'s No. 4 McKinney fee, east flank, Wm. Hodge Sur., 100 ft. W No. 3 and 40 ft. N line tract	Drlg. shale 5,416 ft.
Sun Oil Co.'s No. 3 Chambers, south	Drlg. rock 1,525 ft.
Sun Oil Co.'s No. 1 Smith, west	Drlg. rock 3,907 ft.
Sun Oil Co.'s No. 14 Wilburn fee, east	Drlg. hard shale and lime 1,032 ft.
The Texas Company's No. 1 Williams, southwest	Drlg. sand and shale 6,724 ft.
The Texas Company's No. 2 Winfree, west flank, W. D. Smith Sur., 264 ft. N, 50 ft. W at right angles out of SE cor. of lease	Location.
The Texas Company's No. 3 Winfree, west flank, W. D. Smith Sur., 478 ft. N and 50 ft. W at right angles out of SE cor. of lease	Rigging up.
Yount Lee Oil Co.'s No. 10 Woodward, southeast	Drlg. sandy shale 1,713 ft.
Yount Lee Oil Co.'s No. 17 Chambers, south	Coring sand 4,644 ft.
Yount Lee Oil Co.'s No. 18 Chambers, south flank, Wm. Bloodgood Sur., 100 ft. N Sun Oil Co.'s No. 7	Derrick.
Yount Lee Oil Co.'s No. 19 Chambers, S flank Wm. Bloodgood Sur., 10 ft. N Sun Oil Co.'s No. 8	Location.
Yount Lee Oil Co.'s No. 6 Phillips, east	Rig standing.
Yount Lee Oil Co.'s No. 1 Winfree, west	Sand and shale showing oil 5,450 ft.; drill stem stuck; to sidetrack.

RACCOON BEND—AUSTIN COUNTY

H. R. Flannigan's No. 2 Dietrich	Cmtd. 10-in. csg. 1,063 ft.
Humble & Valley's No. 4 Diemar	Rig.
Humble & Valley's No. 9 Mueller	Cmtd. csg. 1,153 ft.
Humble & Valley's No. 7 Payne	Derrick.
Humble & Valley's No. 8 Payne	Derrick.
Humble & Valley's No. 11 Payne	Location.
Humble & Valley's No. 1 Martha Remmert	Derrick.
Humble & Valley's No. 3 Sherrod	Rig.
Humble & Valley's No. 4 Sherrod	Oil sand 3,045 ft.; cmtd. csg.
Humble & Valley's No. 12 Thompson	Reset screen 3,456 ft.; comp. flowing 287 bbls. oil on ¾-in. choke, first 24 hours.
Humble & Valley's No. 6 Woodley	Derrick.
Humble & Valley's No. 7 Woodley	Derrick.
Humble & Valley's No. 8 Woodley	Derrick.
Humble & Valley's No. 9 Woodley	Derrick.

(Continued on Page 90)

New Locations Northwest of Hobbs Pool

Others in Loving Area and Northwest of Lea Pool. Big Sand Draw Agreement on Unit Operation. Cut Bank Show of Oil

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., Feb. 3.—The first new locations made in Lea County, New Mexico, for several weeks were reported this week. Two of these are in the Hobbs district, one of which will test the northwest area 2½ miles ahead of production. Two locations were made in the Lovington area and one to the northwest of the Lea Pool. Midwest Refining Co.'s No. 29 Turner, in the town of Hobbs and a mile east of production, gauged 21,352 bbls. on a proration test. The wells being completed in the Eunice Pool will be small producers. A well is being drilled in the south Artesia Pool to repressure the sands.

In Colorado, the stockholders of the Platte Valley Petroleum Co. unanimously elected directors and the company is making plans for drilling five wells this year. The Texas Production Co. completed its No. 4 Wick in the Sundance on the Moffat Dome for 258 bbls. initial. One new operation was started in Montezuma County.

Operators in the Big Sand Draw Field in Wyoming signed an agreement for the unit operation of the gas sands in the Frontier formation. The Midwest's Geary Dome test is nearing the second Wall Creek.

Montana reported a good show of oil in the B. & H. Oil Co.'s test in the Cut Bank Field, but collapsed pipe has delayed drilling in. An acreage deal involving payment of $1,000,000 was reported in the Dry Creek Field in Carbon County.

Idaho reported a wildcat that blew considerable quantities of gas for seven hours after which it bridged.

NEW MEXICO

Hobbs Area—Lea County

Two new locations in the Hobbs area were reported, the first for several weeks. One is Henderson & Dexter's No. 1 State, C SW NE, Section 15-18-37, 2½ miles to the northwest of Gypsy Oil Co.'s No. 1 Graham, SE cor. NE, Section 24-18-37, the farthest to the northwest of any well in the Hobbs Pool. The new test will explore an area that has not been drilled and will throw some light on the territory to the northwest. The other location is the Gypsy Oil Co.'s No. 7 Grimes, SE NE NW, Section 32-18-38, in proven territory, an offset on the west to Amerada Petroleum Corp.'s No. 1 State.

Midwest Refining Co.'s No. 29 Turner, C SW SW, Section 34-18-38, a mile east of the nearest producer in the southeastern part of the field and in the town of Hobbs, did even better on a test for proration purposes than was expected and was rated at 21,352 bbls. of oil and 16,500,000 feet of gas through casing and tubing and 7,193 bbls. and 6,370,000 feet through tubing only. Several months ago Midwest notified parties holding surface rights to land in the towns of Hobbs and New Hobbs of its intentions to drill several wells on the land to which it holds the mineral rights and it is probable that at least one or two offsets will be spotted shortly. No. 29 Turner was drilled to a total depth of 4,175 feet and 3-inch tubing is at 4,133 feet. Top of the pay was at 4,019-37 feet.

Midwest's No. 11 Thorpe, C NE NW, Section 10-19-38, an edge well, will be a small producer. At a total depth of 4,202 feet, with 2½-inch tubing at 4,061 feet, it swabbed 180 bbls. through tubing on January 19 and next day it made 48 bbls. This company's No. 11 State, C NE NW, Section 9-19-38, is bottomed at 4,175 feet and swabbing. Top of pay was at 4,090 feet. Same company's No. 11 State, C NE SW, Section 5-19-38, is standing with 6⅝-inch cemented at 3,980 feet, and its No. 8 Terry, C NW NW, Section 9-19-38, is drilling at 3,475 feet in anhydrite. It had a show of oil at 3,225-30 feet.

Amerada Petroleum Corp.'s No. 1-C State, NE cor., Section 36-18-37, is bottomed at 4,062 feet and running 8¼-inch. It had considerable gas as 3,800 feet.

National Securities Oil Co.'s No. 1 Linam, NE SE SW, Section 33-18-37, 4 miles west of the nearest producer, is bottomed at 3,860 feet, where it had 4,000,000 feet of gas several weeks ago, and has set and cemented whipstock at 3,760 feet to drill by tools.

Eunice Area—Lea County

Continental Oil Co.'s No. 2 A. E. Meyers, SE cor. NW, Section 17-21-36, an offset on the west to the Tidal Oil Co.'s No. 1 Coleman, was shot at 3,914-82 feet and swabbed 134 bbls. in 12 hours. It showed a little water. Total depth is 3,992 feet. It may be shot again with 200 quarts as the formation is very tight and hard. Tidal's well, which was completed last year, made 950 bbls. the first 24 hours at a total depth of 3,960 feet after plugging back. Shell Petroleum Corp.'s No. 1 Coleman, NW cor. SE, Section 17-21-36, an offset on the south to the Tidal well, was shot with 100 quarts at 3,975-4,000 feet and made 110 bbls. of oil and 1,000,000 feet of gas the first day after the shot. This well had 23,000,000 feet of gas at 3,246 feet and 47,000,000 feet at 3,555 feet. The 7-inch was set at 3,619 feet. Pay was found at 3,850-4,005 feet. Continental Oil Co.'s No. 1-A Lockhart, NE cor., Section 18-21-36, cemented 7-inch at 3,825 feet and is waiting. California Co.'s No. 1 Meredith, SE cor. NE, Section 19-21-36, is drilling at 1,010 feet in red rock, and Atlantic Oil Producing Co.'s No. 1 Coleman, SW NE NW, Section 17-21-36, is drilling at 3,728 feet.

Lovington Area—Lea County

Two new locations were made in the Lovington area. One is Henderson & Dexter's No. 1 State, NE cor. SE, Section 13-17-37, 7 miles to the south of Fisher & Lowrie's No. 1 State, which swabbed 50 bbls. daily at a total depth of 5,506 feet before plugging back, and 12 miles east of the small producer completed by the Vacuum Oil Co. in 1929. The other location is Western Republic's No. 1 State, SE cor. NE, Section 13-17-36, an offset on the north to the Henderson & Dexter operation.

Lea Area—Lea County

A new location to the northwest of the Lea Pool is Western Drilling Co.'s No. 1 State, SE NE NE, Section 16-20-32.

Caprock Area—Lea County

Western Drilling Co.'s No. 1 Bridges, SE cor. NW, Section 17-17-34, is drilling at 4,576 feet in lime. It had a small show of gas at 4,509-19 feet. The Texas Company had an interest in this operation.

Eddy County

Flynn, Welch & Yates Oil Co.'s No. 2 State, CNL, Section 28-18-28, a pressure well, is shut down at 2,053 feet waiting for completion of Flynn, Welch & Yates' No. 59 State. This well was spudded last November as a pressure well for the south pool in the Artesia Field, the purpose being to repressure the sand with residue gas from Phillips Petroleum Co.'s gas plant. The company and firm of similar names are not to be confused. The company, which is drilling the pressure well, is a combination of Flynn, Welch & Yates, Ohio Oil Co., Three Sands Oil Co. and Snowden & McSweeny. The well is bottomed approximately on top of the oil sand. Flynn, Welch & Yates' No. 59 State, NW cor., Section 5-19-28, is drilling at 680 feet. It had 50,000 feet of gas at 655-65 feet.

Rio Arriba County

L. E. Elliott's No. 1 Elliott, NW cor. NE, Section 26-21-9e, Santa Cruz district, is shut down at 1,685 feet in hard gray lime to underream 6⅝-inch casing.

San Miguel County

Con-O-Kul Oil Co.'s No. 1, NE, Section 34-17n-21, Cherryvale district, completed 82-foot steel derrick and is ready to spud. This is also known as A. E. Kull and others' No. 1 Cherryvale.

Harding County

Milwaukee Syndicate's No. 1 Kerlin, NW cor. SE, Section 34-21-30, commenced spudding January 4.

Hidalgo County

Thomas and others' No. 1, Section 5-22s-20w, near the Arizona line, is reported as having spudded on January 5.

San Juan County

Continental Oil Co.'s No. 24, SW cor. NW, Section 1-29-19, Rattlesnake Dome, is bottomed at 4,730 feet and delayed on account of pipe stuck. Rio Grande Development Co.'s No. 2 Lanier, SE cor. NW, Section 9-29-11, Aztec district, is reported ready to resume at 1,280 feet after completing new financing. It has about 300 feet to go to reach the Picture Cliff.

COLORADO

Interest in Colorado centered in the Platte Valley Petroleum Co., which held its annual stockholders' meeting at Fort Morgan. This company brought in the discovery well on the Greasewood Dome in Weld County on October 10, 1930. It was strictly a wildcat drilled by a local company. The company controls 9,468 acres in that district and is under obligations to drill several wells this year. Bids will be secured on a 12-mile pipe line from the discovery well to Orchard, on the Union Pacific Railroad, on rotary equipment for drilling and other supplies.

Arapahoe County

MacDeb Drilling Co.'s No. 1 Fitzsimmons, NE, Section 7-4s-66, near Aurora, is shut down at 5,730 feet and it will be idle until February 4, when it will resume. There were rumors afloat this

CONTINUED ACTIVITY IN CANADA; SPRING COULEE STRUCTURE TESTS

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, Jan. 31.—In the northern section of the Central Turner Valley area, Spooner Oils' No. 4, LSD 14, Section 13-20-3w5, is reported in production in the deep lime at 5,449 feet. At this depth, 371 feet in the lime, tools were lost; and after an unsuccessful fishing job the well was shot, developing a measured gas production of around 15,000,000 feet. Initial crude naphtha recovery with limited back pressure was 125 bbls. a day, and with increased pressure developed to 150 bbls. This production will be taken and Spooner's No. 5 started in the near future. The new completion gives the company a daily production of around 275 bbls., Spooner's No. 1 making 95 bbls. and No. 2 making 45 bbls. Officers of the company are: President, A. G. Spooner; secretary-treasurer, George A. Barber; vice president, R. A. Brown; directors, Hal Morgan, H. R. Spooner and C. E. Snyder.

In Section 12-20-3w5, Illinois-Alberta Oils' No. 1, LSD 14, has recovered lost drill rods and is cleaning out preparatory to fishing the diamond bit lost when the well was first drilled in, nearly five years ago. Wet gas has been flowing by heads since the rods were cleared, and it is expected the well will be brought back to its original production, around 100 bbls., without deepening. New McDougall-Segur Oil Co.'s No. 3, same LSD, is drilling 300 feet in the lime at 5,570 feet; No. 2 is making 28 bbls. after deepening in the lime, and will be cleaned out. British Dominion's No. 3, LSD 6, is reported drilling on top of the Dalhousie sand at 4,880 feet. There is a chance of light crude in this horizon, but the test will probably be carried 200 feet farther to the lime. Widney Petroleums' No. 1, LSD 11, is reported drilling 120 feet in the lime at 5,135 feet after getting a small wet gas flow. Separators were hooked up to take this production while drilling; crude naphtha recovery is estimated around 25 bbls.

In Section 1-20-3w5, Okalta Oils' No. 2, LSD 8, is cleaning out after a shot in the lime at 5,095 feet. McLeod Oil Co.'s No. 5, LSD 15, is testing production at 5,188 feet; and McLeod's No. 3, LSD 16, is cleaning out and deepening in the lime.

Dome Oils' No. 2, LSD 16, Section 36-19-3w5, is drilling in the Dalhousie sands around 4,935 feet, after getting a fair gas flow on top of the sand at 4,890 feet.

Structure Oil & Gas' No. 1, LSD 7, Section 31-19-2w5, is drilling 475 feet in the lime at 5,200 feet, with the limestone very tight and only a little gas. It is planned to carry the test to at least 5,500 feet.

Imperial Drilling

Among the Imperial tests in Central Turner Valley, Royalite Oil Co.'s No. 7, LSD 3, Section 13-20-3w5, has been brought back into production after cleaning out. The well, which offsets Illinois-Alberta's No. 1 on the north, formerly made 100 bbls. or better, but has been off production since it bridged in October, 1929. Royalite's No. 25, N half Section 31-19-2w5, is drilling 318 feet in the lime at 4,598 feet.

In South Turner Valley, Southern Lowery's No. 1, LSD 3, Section 9-19-2w5, which cemented at 4,565 feet, is drilling in the lime at about 4,585 feet. Lowery Petroleum's No. 2, NW Section 17-19-2w5, which cemented in the top of the lime at 5,141 feet, is drilling below 5,244 feet.

In Section 27-18-2w5, Imperial Oil, Ltd., is reported to have finished a difficult fishing job on Merland Oil Co.'s No. 1. This test, the farthest south test in the Turner Valley, was drilled by the Merland Oil Co. to 4,878 feet, and left with tools and an undischarged shot in the hole. At last reports the Imperial drillers were repairing rotary rig preparatory to resuming drilling, and it is understood the company will complete the test to the deep lime horizon, which should be reached within 500 feet.

South Turner Valley

In South Turner Valley, the four Home Oil Co. producers in Section 20-19-2w5, are reported making around 2,600 bbls.

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week that the company bailed down the water in the hole to within 100 feet of bottom when the gas pressure increased sufficiently to clean the hole. It was claimed the bit went about 3½ feet into an unidentified sand. Scouts visiting the well say it is locked up and there is nothing to indicate anything unusual. It is definitely known, however, that following the shutdown on January 14 officials have been busy acquiring additional leases and checking all its holdings. There is little doubt that the officials believe they are about ready to bring in some kind of a well. It had been making small shows of gas in the shale and if the hole has entered a sand, as reported, developments will be of more than ordinary interest.

Larimer County

Standard Oil Co. of Colorado's No. 1 Hertha, NW cor., Section 21-4n-69, Berthoud Dome, is drilling at 3,656 feet after a shutdown for boiler repairs. It is bottomed between the Nio-Benton and the Muddy. Continental Oil Co.'s No. 3 Scott, SW SE, Section 6-9n-68, Wellington Dome, is standing at 4,932 feet with hole cemented to stop caving.

Morgan County

Indian Territory Illuminating Oil Co.'s No. 1 State, C NE NE, Section 16-1n-57, Fort Morgan district, was drilling at 4,010 feet on January 24.

Jefferson County

Ruby Hill Oil & Gas Co.'s No. 1 Braden, SE cor., Section 24-4s-69, near Denver, is drilling at 3,825 feet in shale and carrying the 6⅝-inch.

Fremont County

Isador Spangler's No. 1, SE SE, Section 4-20-69, South Florence, is drilling at 2,250 feet.

Montezuma County

Mesa Verde Ranch Co.'s No. 3 Haller, NE SE SE, Section 33-36-14, Mount Lookout structure, has been temporarily abandoned at a total depth of 900 feet. It had an oil sand at 654-704 feet and a white water sand at 723-48 feet, both members of the Dakota series. Rig has been moved to No. 4 Haller, SE cor. SW, Section 34-36-14, which spudded in an 8-inch hole to go to around 750 feet.

Rio Blanco County

Tidewater Associated Oil Co.'s No. 1 Amazon, SE cor., Section 24-2n-103, Rangely Dome, has completed work of abandoning.

Moffat County

Texas Production Co.'s No. 4 Wick, NW NW, Section 10-4n-91, Moffat Dome, was completed in the Sundance at a total depth of 4,759 feet. It flowed 258 bbls. in 24 hours and is now making around 200 bbls. Mountain Fuel Supply Co.'s No. 2 State, SE NE, Tract 37-12n-100, Hiawatha district, is fishing for bit at 1,690 feet.

WYOMING

Big Sand Draw

The owners of gas rights in sands in the Frontier formation on the Big Sand Draw structure in Fremont County, Wyoming, with the exception of the United States, signed the agreement which has been under negotiation for some time providing for the unit operation of the field and it is expected Secretary Wilbur of the Department of the Interior will give it formal approval before the present law expires on January 31. A supplemental agreement which provides for the details of the operating of the gas sands, division of revenues and expenses, accounting, etc., has been drawn and is now being examined. The area of the field in the sands of the Frontier formation which comes under the agreement comprises that portion which comes within the 2,800-foot contour, based on the first sand of that series as shown by the structural map of the United States Geological Survey. This area embraces 2,520 acres. The Producers & Refiners Corp. will be the operator for the unitized area. The agreement provides that each party thereto shall receive a proportionate part on an acreage basis of all gas produced from the Frontier and shall pay a proportionate part, based on acreage, of all past and future costs. The agreement applies only to the gas in the Frontier sands and any deposits of gas from any other sands and oil from any and all sands are expressly excluded from the force and effect of the agreement. For the purpose of determining government royalties, the total production allocated to any lease in any month shall be assumed to have been produced thereunder. The working interests as merged into an undivided unit operation are as follows:

Producers & Refiners	91.2857
Riverton Petroleum Co.	0.7963
C. C. Rae	2.8413
Templeman Oil Corp.	1.9048
MacKinnie Oil & Drilling Co.	1.5873
Downey and others	1.5873
Total	100.0000

The Templeman acreage is now held by the Reiter-Foster Oil Corp., which becomes a party to the agreement. Of the total area in the unitization agreement, 1,720 acres is government land and 800 acres is patented and placer claim acreage.

Natrona County

Midwest Refining Co.'s No. 11, SE NW NW, Section 32-34-77, Geary Dome, is drilling at 5,134 feet with the second Wall Creek as the next objective. It still has 100 feet to go to reach that horizon.

Cuyler Oil Co.'s No. 1 Ogden, SE, Section 23-36-85, Powder River, has completed rig and is ready to spud. This will be a test to the Muddy. Last year it drilled a well on this structure which was completed as a gasser in the Frontier.

Summitt Oil Co.'s No. 1 Trevitt, NW NW, Section 21-33-80, North Platte, is drilling at 1,170 feet.

Wyoming Associated Oil Co.'s No. 26-SD-3, NW, Section 26-40-79, Salt Creek, is bottomed at 2,900 feet and is waiting for government water test before drilling in.

Converse County

Ohio Oil Co.'s No. 5 Jones, NW NE NE, Section 9-33-76, Big Muddy, is drilling at 3,954 feet with rotary bit.

Fremont County

Producers & Refiners Corp.'s No. 10, NW cor. SW, Section 14-32-95, Big Sand Draw, has been cored to 4,299 feet and is reaming at 4,296 feet. Gas in the sand topped at 4,217 feet, supposedly first of the Dakota series, was not gauged, but was killed to continue drilling to lower horizons. The gas in this sand, or any oil which may be encountered, will not come under the unit operation agreement which takes in only the gas in the Frontier sands.

Texas Production Co.'s No. 1 State, SW SW, Section 36-34-95, Alkali Butte, is sidetracking at a total depth of 4,485 feet with 6⅝-inch at 4,280 feet.

Washakie County

Ohio Oil Co.'s No. 1 Strothers, SE NW, Section 19-45-92, Neiber Dome, has completed roads and bridges for moving in camp and materials and is drilling a water well. This test will start with the intention of going 7,000 feet and a special derrick 136 feet high will be erected.

Dakota-Wyoming Oil Co.'s No. 6, NE, Section 24-47-90, Sherrard Dome, showed for a 4-bbl. well in the Frontier at a shallow depth. This structure is described as a small northwest-southeast wrinkle on a broad westward dipping slope, 1 mile long and half a mile wide. Oil was found in six out of seven wells drilled in 1914 at a depth of 100 feet, but were hardly commercial. Dakota-Wyoming took over the properties and the permit was extended under a provision that no more drilling be done until November 7, 1930, at which time this well was started.

Big Horn County

Ohio Oil Co.'s No. 1 Smith, Lot 61, Section 33-56-97, Garland Dome, is drilling at 850 feet.

Park County

Midwest Refining Co.'s No. 31 Rosenberg, SW cor. SE, Section 24-58-98, Frannie Dome, is drilling at 4,050 feet and still in the red beds.

MONTANA

Glacier County

The B. & H. Oil Co.'s No. 1 Haines, SE SE, Section 2-34n-6w, Cut Bank district, had a show of oil in the top of a sand at 2,760 feet, either the Sunburst or a stray above that sand, which at 2 feet in looked encouraging. There was, however, but a small quantity of gas with the oil. It was decided to underream and lower 8¼-inch to top of the sand before drilling any deeper. The string dropped 30 feet and collapsed. The swedge would go only to 1,490 feet and sidetracking then was begun. Hill & O'Neill's No. 1 Michaels, C SE SE, Section 20-36-5w, in this same district, is drilling at 3,000 feet. It had a small show of gas in sand at 2,878-2,905 feet and a show of oil at 2,894 feet and a small show of water at 2,903 feet. The last named caused the hole to begin caving which could not be overcome by cementing and 5 3/16-inch was run to shut off the bad ground. Fulton Petroleum Co.'s No. 1 Blackfoot, SW NE NE, Section 28-36-12w, Milk River, is bottomed at 1,184 feet, standing with the hole cemented the second time in an effort to stop caving.

Carbon County

Mark U. Weber and Joe Cook of Denver are reported to have tentatively closed a contract with the Beartooth Oil Co. of Billings for two tracts embracing 611 acres on the Dry Creek structure held under permits. On one of these tracts, in the C SW, Section 7-7s-21, a well was started and drilled to 750 feet. The deal provides for the payment of $25,000 in cash upon concluding same and $75,000 over a period of several months and $900,000 out of production. The purchasers agree to complete the test to the Dakota or drill another hole.

Ohio Oil Co.'s No. 1 Montana Industrial, SW NE, Section 11-7s-21, is drilling at 2,296 feet, and its No. 1 Souders, Section 2-7-21. is drilling at 655 feet.

Rosebud County

Prairie Oil & Gas Co.'s No. 1-X, Contract 3, SW NW, Section 26-10n-39, Porcupine Dome, is drilling at 2,160 feet in gray shale, and its No. 1, Contract 4, SW SW, Section 28-11-39, is bottomed at 1,355 feet and has recovered one string of tools and is sidetracking the other.

Liberty County

Western Natural Gas Co.'s No. 2 McHoney, C SE NW, Section 21-37-4e, Whitlash district, is drilling at 700 feet.

Toole County

Liquid Gold Oil Co.'s No. 1 Roberts, C NW NE, Section 25-36-1e, Barthelote district, is drilling at 1,570 feet. Above this depth it had a small show of oil. The A-1 Petroleum Co.'s No. 1, SE NE, Section 24-36-1e, is spudding at 141 feet. Ashalta Oil Co.'s No. 1 Volbrecht, NE SE, Section 11-37-4w, Border Field, is shut down at 2,120 feet after cementing to stop caving. It had a sand at 1,903-07 feet which made three bailers of water per day and it was decided to dry up the hole before drilling into the Sunburst sand. International Royalty Holding Co.'s No. 1 Henry, SW cor., Section 26-35-3e, Grandview, is bottomed at 2,550 feet and underreaming casing to shut off water. It had a show of oil on top of the water, the water supposedly coming from above.

UTAH

Utah Southern Oil Co.'s No. 1 Balsey, C NE NE, Section 31-23-21, Salt Valley, is drilling at 910 feet in salt. Pipe was set at 869 feet on hard shale and anhydrite bed. Bottom of the salt is expected at 2,500 to 3,000 feet. Diamond Oil Co.'s No. 1, Section 16-8s-5e, Utah County, is drilling at 3,107 feet in shale.

IDAHO

Crystal Dome Oil Co.'s No. 2 Daniels, SW SW, Section 32-10n-4w, joint with Mountain States Oil & Gas Co., between the towns of Payette and Weiser in Payette County, about which there have been some sensational reports circulated, encountered gas at 1,995 feet in sufficient quantities to throw mud, water and sand over the top for seven hours. The tools were blown up the hole where they lodged and caused the hole to bridge and shut off the flow. The cable kinked and broke and it is not certain whether the hole can be saved. Equipment to fish out the cable and tools has been ordered. The gas had sufficient force to blow some of the boards off of the derrick. Last fall this well had about 5,000,000 feet of gas at 1,865 feet. The new flow was not gauged, but reports considered reliable

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REVIVAL OF DRILLING AT MUSKEGON; SEVERAL WELLS BEING DEEPENED

By Paul A. Elliott

MUSKEGON, Mich., Feb. 2.—An oil well, a gas well and a dry hole comprised the list of completions in the Mount Pleasant area as well as in the whole State of Michigan during the week.

The Pure Oil Co.'s No. 4-C John B. Raynor, SW SW, Section 1-14n-3w, Chippewa Township, Isabella County, made 225 bbls. initial daily production in the Dundee. Limestone was topped at 3,507 feet and pay sands at 3,540 feet. Total depth is 3,575 feet. The Pure Oil Co.'s No. 2 Willie and others, SW NE, Section 4-14n-6w, Broomfield Township, Isabella County, made only 1,500,000 feet in the Marshall formation at a total depth of 1,350 feet. The sand was topped at 1,319 feet and the pay was struck at 1,331-50 feet. It had been hoped that this well would indicate greater gas reserves in Broomfield Township where seven wells now have an aggregate open flow of more than 25,000,000 feet.

The Geneva Oil Corp.'s No. 1 Nicholson, SW SW, Section 7-14n-5w, Deerfield Township, Isabella County, also was a disappointment when it failed to strike commercial production in the Dundee which was topped low at 3,680 feet and water was struck at 3,725 feet. It has been plugged at 3,734 feet. The well made a flow of about 1,000,000 feet of gas when it first struck the Marshall at 1,365-75 feet.

Two wells which had struck the oil sands of the Dundee but were not completed, were the Goll & Mole Co.'s No. 2 Mumy, SW SW NW, Section 2-14n-3w, Chippewa Township, Isabella County, and the Wittmer Oil & Gas Properties' No. 1 McKenzie, NE NE, Section 25-15n-4w, Isabella Township and Isabella County. The Mumy well topped the Dundee at 3,518 feet and the pay at 3,552 feet while the McKenzie well struck the limestone at 3,604 feet and the pay at 3,642 feet. Both had oil in the hole but operators were expecting an increase with additional drilling.

Permits Issued

Two permits for new wells in the proved Mount Pleasant Field are as follows: Theodore Oil Co.'s No. 1 Adrian Stead, NW NE SE, Section 8-14n-2w, and W. L. McClanahan's No. 1 Robert Kelly, NW NW SW, Section 8-14n-2w, both in Greendale Township, Midland County.

A third new location is for John A. Mercier's No. 1 Department of Conservation well, N half NE NW Section 33-18n-4w, Hatton Township, Clare County. It will be McKay and Mercier's No. 7 in Clare County.

Muskegon Field

Complaints against flooding the Monroe formation with water from the Trenton limestone and caving of the hole led the Muskegon Deep Well Syndicate to decide to case off its No. 5 Herman Heinz, NE NE Section 8-10n-16w, Muskegon Township, Muskegon County, the first deep test in the Muskegon Field. A string of 6-inch casing will be run to the present depth of 4,668 feet before drilling ahead. It is believed the well is within 50 feet of the base of the Trenton formation. If necessary a final string of 5 3/16-inch casing will be run to case off water that may be encountered above or in the St. Peter sandstone before reaching the contract depth of 5,200 feet.

There is greater drilling activity in the

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Big Wells in Two California Pools

Richfield Oil Co.'s Co-operative Refining and Marketing Agreement Takes Company Out of List of Crude Oil Buyers

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., Jan. 31.—Daily production of crude oil in California registered a substantial decline during the early part of the past week, dropping to within 16,702 bbls. of the maximum allowable of 500,000 bbls. per day, but subsequently rebounded, due primarily to the completion of a new well in the Elwood Field of Santa Barbara County and another at Kettleman Hills. The well completed at Elwood has been cut back upon conclusion of the customary five-day flow test, but the completion at Kettleman Hills is still producing unrestrained, as it is located on fee acreage outside the area covered by the Kettleman Hills agreement. The cancellation of crude oil purchase contracts by the Richfield Oil Co. has complicated the curtailment problem in California notwithstanding many of the producers affected by this cancellation subsequently accepted the Richfield's co-operative refining and marketing agreement.

Cancellation of purchase contracts by the Richfield leaves a number of producers without a buyer for their production. This situation received careful consideration at a meeting of the general oil curtailment committee early this week. The resolution adopted by that committee is indicative of the complex situation arising from the action of William C. McDuffie, receiver in equity for the Richfield company. The general oil curtailment committee passed a resolution stating that whereas the production of the State has been reduced to 516,000 bbls. per day and whereas the producers are in a position within 10 days after notice by the purchasing companies that 500,000 bbls. of production will be purchased, to bring the production to 500,000 bbls., therefore be it resolved that the producers of California agreed to bring the production of the State of California to 500,000 bbls. within 10 days of the notice that the purchasing companies will purchase a total of 500,000 bbls. daily of curtailed oil at the posted prices." Particular attention is directed to wording of this resolution, especially the latter part which indicates that daily production will be reduced to 500,000 bbls. if operators are assured that purchasing companies will buy this quantity. In order to meet this requirement, the other major companies in California must pledge themselves to purchase a portion of the production released by the Richfield. A few days previous to the Richfield's wholesale cancellation of crude oil purchase contracts, Paul N. Boggs, chairman of the operators general committee on curtailment, issued an ultimatum to producers that they must immediately reduce production to the maximum allowable of 500,000 bbls. per day if they wished to avoid a general price cut. Major companies are apparently marking time awaiting the outcome of the Richfield's negotiations with producers before taking any definite steps.

The new plan of the Richfield Oil Co., involving co-operative marketing of petroleum and petroleum products, has not met with unanimous approval, although a number of producers have already signed the agreement, due probably to the fact that they are unable to negotiate purchase contracts with any substantial company. Most of the large buyers in California are carrying more than their allotment and are naturally reluctant to make additional commitments which would only tend to jeopardize their financial condition. The co-operative agreement of the Richfield Oil Co. is theoretically sound but may require revision if operators are to secure a net comparable with the price paid for crude oil by other major companies. The Richfield's new plan is a rather complex one both as to the operating mechanics and the manner of paying producers for current production.

Plan Described

The Richfield's new co-operative agreement provides in part: "That the volume of gasoline, gas oil and fuel oil per barrel contained in the crude oil offered for delivery shall be determined by four point distillation method. In order that the principal (producers of crude oil) may have the advantage of the cracking facilities of the Richfield Oil Co., the volume of said crude oil determined to be gas oil by the four point distillation method shall be accounted for by (a) the average volumes of gasoline in gallons, gas oil in barrels and fuel oil in barrels recovered per barrel of gas oil cracked and (b) if the total number of barrels of gas oil cracked and processed during the accounting period is equal to or exceeds the total number of barrels of gas oil recovered from crude oil refined the total gas oil content of crude oil delivered hereunder as determined by the four point distillation shall be accounted for as gas oil, gasoline and fuel oil oil in the cracking proportions, and (c) if the total number of barrels of gas oil cracked by the Richfield during the accounting period is less than the total number of barrels of gas oil recovered from crude oil refined the Richfield shall account to the producers as gasoline, gas oil and fuel oil in the cracking proportions for that fraction of gas oil content of crude oil delivered as determined by the four point distillation, equal to the total number of barrels of gas oil cracked and processed by the total number of barrels of gas oil recovered from crude oil refined during the period and the remaining fraction of said gas oil content shall be accounted for as gas oil."

Plan of Payment

The Richfield's new co-operative plan provides for the payment of oil due operators over a 60-day period. The agreement provides "that the Richfield shall advance to the producer 35 cents per bbl. for crude oil on or before the tenth of the calendar month succeeding delivery and that on or before the last day of said calendar month following delivery Richfield shall advance to the producer an amount which, together with said 35 cents per barrel, shall equal 75 per cent of the amount which Richfield shall estimate to be the amount to be paid to producers on account of said crude oil. On or before the last day of the next succeeding calender month Richfield shall pay to producers the balance of the amount for which it is to account for said crude oil determined according to the method hereinbefore set forth and as certified by certified public accountants."

The method of determining the amount to be paid producers by the Richfield under the new contract is a rather complex one. It provides in part that, "the gasoline content in gallons as determined, together with the proportion of the gas oil content in gallons to be accounted for as gasoline shall be multiplied by the net average price per gallon received by the Richfield Oil Co. for U. S. Motor gasoline, said net average price being determined by dividing the gross sales price received from all sales of such gasoline in every state and country less all costs and expenses of transportation, storage, distribution, sales, advertising, overhead, insurance, depreciation, municipal, county, state, or federal taxes, and any and all other marketing costs or expenses whatsoever pertaining to said sales by the total number of gallons of such gasoline sold. That proportion of the gas oil content in barrels to be accounted for as gas oil shall be multiplied by the net average price per barrel received by Richfield Oil Co. for gas oil sold as such during the accounting period, said net average price being determined in a manner similar to that prescribed for determining the net average price of gasoline. The fuel oil content in barrels as determined, together with that proportion of the gas oil content in barrels to be accounted for as fuel oil, shall be multiplied by the net average price per barrel received by Richfield Oil Co. for fuel oil sold during the accounting period."

In order to absorb all major charges against current expenses, the Richfield's contract with the producers provides "that from the net average price of major commodities there shall be deducted an amount equal to the cost and expense to Richfield per barrel of crude oil of gathering and transporting the producer's crude oil and delivering same to Richfield's refineries through facilities provided by Richfield during the accounting period, and also an amount equal to the cost and expense to Richfield per barrel of crude oil, of refining crude oil and further refining gasoline derived therefrom and also an amount equal to the cost and expense to Richfield of cracking gas oil and further refining the products thereof per barrel of gas oil subjected to the cracking process during accounting period multiplied by all or that fraction of the gas oil content in barrels to be accounted for as gasoline, gas oil and fuel oil in the cracking proportions as provided. From the remainder there shall be deducted as Richfield's compensation an amount equal to 1 cent per gallon on the gasoline content of said crude oil and on that portion of the gas oil content to be accounted for as gasoline and 5 cents per barrel on that portion of the gas oil content of said crude oil to be accounted for as gas oil and 5 cents per barrel on the fuel oil content of said crude oil and on that portion of the gas oil content to be accounted for as fuel oil."

Will Make an Appeal

California's gas conservation law which prohibits the unreasonable waste of natural gas will be appealed to the United States Supreme Court for a decision in the near future. This legislation, which has been upheld in decisions by the California supreme court and California district court of appeals, will be appealed to the United States Supreme Court by the Wilshire Oil Co. and its subsidiaries. Division Two of the district court of appeals early this week granted the Wilshire group leave to appeal the case and at the same time issued an order stating the effect of an order of the superior court which made it obligatory for operators in the Santa Fe Springs Field to eliminate the waste of natural gas. The superior court recently ruled that it would conduct a hearing on the motion to make permanent the temporary injunction issued by Superior Judge Hazelett at 10 a.m. on February 16, 1931. This proposed hearing will be placed off calendar due to the injunction issued by the district court of appeals. The arguments advanced by the Wilshire group were almost identically the same as those offered against the constitutionality of the act in both the state supreme court and district court of appeals.

Playa Del Rey

There were several substantial completions finished in the Playa Del Rey Field of Los Angeles Basin during the past week. The largest of this group was the Pacific Shore Oil Co.'s No. 1 Brick, which came in under a natural flow doing 2,640 bbls. of relatively clean 24.1 gravity oil per day from 6,081 feet. This new well indicates the existence of substantial production in the eastern end of the field and enhances the value of the Union Oil Co.'s Vidor lease on which a new well has just been started. The Birch Oil Co. also finished a substantial producer during the early part of the past week when No. 1 Del Rey was brought in flowing 1,160 bbls. of clean 23.5 gravity oil per day through a seven-eighths inch bean under a pressure of 560 pounds. This new well, completed in the deep Recreation zone at 5,812 feet, was finished with an 8⅝-inch water string landed at 5,574 feet and a 6⅝-inch liner carrying 241 feet of perforated. The Barnsdall, which is developing the Burks lease in conjunction with Cypress Petroleum Co., put No. 10 on a preliminary production test at 4,195 feet but the output, 200 bbls. per day, showed an excess water cut and will require further work. The Mohawk Oil Co., with several producing wells to its credit in this field, finished No. 2-L in the deep zone at 5,898 feet and this new well, completed barefoot, is doing 615 bbls. of 23.4 gravity oil per day. The Union Oil Co.'s No. 1 Del Rey sanded up early this week but is expected to be back on production again within the next few days.

Kettleman Hills

No. 2 Felix of the Petroleum Securities in the North Dome of the Kettleman Hills Field has turned out to be a much better well than initial gauges indicated.

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Fuel oil	.....	.....	.....	.....	.....	71,950
Diesel and gas oil	.....	.....	119,644	17,092	208,460	359,861
Gasoline	330,585	47,226	329,744	47,106	1,143,619	1,865,362
Coastwise—						
Crude oil	284,090	40,586	524,671	74,953	1,172,266	1,065,099
Fuel oil	347,630	49,661	270,836	38,691	1,114,343	1,291,556
Diesel and gas oil	69,375	9,911	40,941	5,849	150,693	120,332
Gasoline	268,398	38,343	319,798	45,685	763,673	880,116
Kerosene	.....	.....	7,955	1,136	26,729	3,163
Exports—						
Crude oil	216,324	30,903	224,615	32,088	567,713	613,307
Fuel oil	408,449	58,350	254,984	36,426	875,831	1,258,308
Diesel and gas oil	71,592	10,227	120,004	17,143	197,571	242,672
Gasoline	181,405	25,915	250,657	35,808	1,064,204	1,430,984
Kerosene	.....	.....	.....	.....	3,022	89,227

TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC AND GULF COAST PORTS

Coastwise—						
Fuel oil	.....	.....	141,000	20,143	224,629	198,793
Diesel and gas oil	.....	.....	.....	.....	.....	25,376
Gasoline	.....	.....	94,707	13,530	128,939	311,730
Kerosene	.....	.....	7,761	1,109	7,761	10,115
Exports—						
Crude oil	.....	.....	.....	.....	.....	3,075
Fuel oil	.....	.....	.....	.....	.....	54,093
Diesel and gas oil	.....	.....	.....	.....	.....	6,050
Gasoline	.....	.....	.....	.....	82,170	264,426
Kerosene	94,961	13,566	.....	.....	94,961	133,749

When this new producer was turned into the tanks for the first time it was flowing at the rate of 2,500 bbls. per day from 8,100 feet. Production has subsequently built up, however, and this new well is at the present time flowing 5,340 bbls. of 35.1 gravity oil. Gas production is abnormally low indicating the possibility of developing substantial production of crude oil with a relatively low gas oil ratio by producing the lower oil zone and blanking off the upper high pressure horizon. The Petroleum Securities is rotating ahead in No. 3 Felix and this well should, barring the development of mechanical trouble, be on production within the next 90 days. No. 1 Felix, which the Petroleum Securities finished several months ago, is being taken off production and will be deepened to the oil zone underlying the upper or high pressure horizon.

The Associated Oil Co., faced with the necessity of providing adequate pipe line facilities to handle increased production of light gravity oil during the next few years from Kettleman Hills and Lost Hills-Belridge, has already started work to increase its pipe line efficiency. In order to facilitate the movement of light gravity crude from the San Joaquin Valley fields, the Associated will lay 60 miles of 6-inch seamless pipe to tidewater at Monterey Harbor. The Associated's new line will start in the North Belridge Field of Kern County and extend up through the Lost Hills and Kettleman Hills Fields to its pump station at Coalinga, at which point it will be connected up with the company's 6-inch Coalinga-Monterey line, which was laid a number of years ago. The 6-inch line from Coalinga to Monterey on the sea coast was constructed of lap weld pipe with screw joints approximately 28 years ago. In order to utilize this old line, which for many years was used for the transportation of heavy oil from Coalinga to tidewater, the company will weld all collars to the pipe in order to permit the transportation of volatile oil. According to tentative plans, this new line should be completed and in operation around the first of May.

Elwood

The Barnsdall and Rio Grande successfully finished well No. 7 on tideland permit No. 88 in the prolific Elwood Field of Santa Barbara County and this new well, which registered an initial daily production of 2,000 bbls. per day from 3,385 feet, has subsequently built up to 7,250 bbls. In accordance with the curtailment agreement this well was beaned back upon conclusion of the customary five-day flow test, during which the potential of the well was established. With the completion of this well there is only one incompleted drilling project under way in the Elwood Field at the present time. This is the Barnsdall and Rio Grande's No. 1 Bishop-Evans, which at the present time is rotating ahead in a hard shell formation at 4,150 feet. Operators in the Elwood Field ratified a drilling agreement a few months ago whereby no drilling would be conducted as long as current production was sufficient to meet the allowable production permitted under the statewide curtailment program.

Capitan

The General Petroleum has suspended production activities in the Capitan Field of Santa Barbara County after establishing the potential production of the seven wells finished in that area. During the early part of the past week the General Petroleum finished its eighth successful completion in the Capitan Field when No. 8 Erburu was brought in on the beam pumping 220 bbls. of exceptionally clean 42.6 gravity oil per day from 2,422 feet. This is the most important completion chalked up by the General Petroleum since its discovery of this field last year. The significance which attaches to the completion of No. 8 Erburu lies in the fact that it reveals the existence of oil in the Sespe formation and thereby increases the General Petroleum's reserve of light refining crude. The first seven wells in this field were completed in the overlying Vaqueros which yielded wells producing approximately 100 bbls. per day of heavier crude from around the 1,500-foot level. This new well, although it did not show sufficient gas to result in a natural flow, enhances the value of the General Petroleum's holdings at Capitan because of the higher gravity oil found this week.

Huntington Beach

A check of development work under way by the Superior and Transport Oil companies in the town lot section of the Huntington Beach Field reveals the fact that a production test will probably be made of the deep zone in that field within the next week or 10 days. The Superior has just run in a 4¾-inch combination string preparatory to conducting a production test on No. 1 fee, its deep zone discovery. The Transport's No. 17 McCaslin is standing cemented at 6,887 feet wtih bottom of the hole at 7,112 feet, but drilling operations will probably be resumed some time within the next few days and some additional hole made before testing out. Operators have been watching the Superior's operations in the town lot area at Huntington Beach for the past several months because if a highly productive deep zone is discovered it will result in additional drilling and complicate curtailment work to such an extent that it might jeopardize future work along this line.

In the Long Beach Field Bryan & Stone completed No. 1 Carson, a new well flowing 1,078 bbls. of 27.2 gravity oil per day from 6,653 feet. Completions in the Long Beach Field were few and far between this week and a check indicates the probability that new wells will be considerably less frequent by the time another few months have drawn to a close. Drilling operations in the Rosecrans Field of Los Angeles Basin failed to increase, as many had anticipated following the completion of a substantial producer by Sunset Pacific Oil Co. several months ago, and interest in this area at the present time appears rather lax. Only two incompleted drilling projects are under way in the Rosecrans Field at the present time. The Shell Oil Co.'s No. 7 Manuel, a deep test in the Dominguez Field of Los Angeles Basin, recently passed the 8,700-foot level but, despite the poor showing of the well up to the present time, drilling operations will continue indefinitely. The Continental Oil Co.'s deep test in the Seal Beach Field was rotating ahead a few days ago at 8,325 feet. The Standard is starting four new wells on the Emery and Murphy leases in the West Coyote Field of Los Angeles Basin but this increased drilling does not indicate any intention of stimulating production as the company has several thousand barrels per day curtailed at the present time. The Standard was recently granted an extension of time on its drilling agreement which called for the starting of a wildcat on Santa Cruz Island, which is located approximately 40 miles off the coast line of Santa Barbara County.

Belridge

The Richfield Oil Co.'s No. 1 Belridge in Section 22-27-20 and the Ohio Oil Co.'s No. 1 Bloemer in Section 36-27-20 indicate conclusively that the productive limits of the North Belridge Field of Kern County will be very limited in areal extent. The Richfield plugged back its test from 6,639 feet to 6,404 feet and subsequently landed and cemented a string of 6⅝-inch at 6,255 feet preparatory to an early production. The Ohio Oil Co.'s No. 1 Bloemer, located southeast of the Belridge Oil Co.'s deep zone discovery well, is running approximately 700 feet deeper stratigraphically, indicating a very pronounced dip. The Union Oil Co.'s No. 17 Belridge, another well southeast of the discovery well, is also running somewhat deeper than the first deep zone producer in this area. The present unfavorable outlook of the Rich-

(Continued on Page 104)

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Olympic Realty Corp., No. 1 Barnes, Los Angeles Co.	14- 2-15	4,875		cleaning out
Hines Pet., No. 1 Ocean Park, Los Angeles Co.	9- 2-15	rig		suspended
Taylor Oil Co., No. 1 Culver, Los Angeles Co.	12- 2-15	5,140		sd. sh. drilling
Mesmer City Corp., No. 1 Mesmer, Los Angeles Co.	24- 2-15	mtl.		building rig
Dwyer & Becker, No. 1 Compton, Los Angeles Co.	17- 3-13	4,520		cleaning out
Allison Synd., No. 1 Baldwin, Los Angeles Co.	8- 2-14	4,890		sd. sh. drilling
Cal. Ventura Oil Co., No. 1 Manhattan, Los Angeles Co.	30- 3-14	6,525		suspended
Cal. Ventura Oil Co., No. 1 Hermosa, Los Angeles Co.	31- 3-14	3,396		suspended
Cal. Ventura Oil Co., No. 2 Hermosa, Los Angeles Co.	31- 3-14	3,300		suspended
Cal. Oilfields Corp., No. 1 Hermosa, Los Angeles Co.	31- 3-14	rig		rigging up
Westwood Pet., No. 1 Hermosa, Los Angeles Co.	6- 4-14	rig		suspended
Tulsa Oil Co., No. 1 Hermosa, Los Angeles Co.	6- 4-14	rig		rigging up
Wood, C. L., No. 1 Hawthorne, Los Angeles Co.	10- 3-14	2,184		suspended
Alondra Co., Ltd., No. 1 Hawthorne, Los Angeles Co.	23- 3-14	rig		suspended
McMahon & McDonald, No. 1 Watts, Los Angeles Co.	12- 3-14	4,665		suspended
Staple Oil Co., No. 1 Manhattan, Los Angeles Co.	24- 3-15	rig		suspended
McKeon Drlg. Co., No. 1 Watts, Los Angeles Co.	1- 3-14	4,700		sd. sh. drilling
Shelley, C. M., No. 1 Torrance, Los Angeles Co.	12- 4-14	rig		suspended
Mack Oil Co., No. 1 Chatsworth, Los Angeles Co.	6- 2-16	rig		suspended
San-Van Oil Co., No. 1 Van Nuys, Los Angeles Co.	14- 1-16	1,814		gr. sd. drilling
Rucker & Croul, No. 2 Puente, Los Angeles Co.	27- 2-10	1,203		sd. sh. drilling
Bardeen Pet., No. 2 Puente, Los Angeles Co.	2- 2-10	2,998		suspended
Arden Oil Co., No. 1 Puente, Los Angeles Co.	15- 2-10	3,325		suspended
D. & B. Oil Co., No. 1 Puente, Los Angeles Co.	3- 2-10	4,620		suspended
El Dorado Oil Co., No. 1 Puente, Los Angeles Co.	30- 2- 9	1,092		suspended
Marcel Pet. Co., No. 1 Puente, Los Angeles Co.	31- 2- 8	3,100		suspended
Cudahy Oil Co., No. 1 Bell, Los Angeles Co.	30- 2-12	1,030		hd. sd. drilling
The Texas Company, No. 1 Montebello, Los Angeles Co.	4- 2-12	rig		rigging up
Celito Oil Co., No. 1 Monterey Park, Los Angeles Co.	28- 1-12	5,278		suspended
Wolfe, Geo., No. 1 Alhambra, Los Angeles Co.	24- 1-13	2,000		sd. sh. drilling
Los Gatos Oil Co., No. 1 El Monte, Los Angeles Co.	16- 1-11	2,280		suspended
Rancho Oil Co., No. 1 Rosemead, Los Angeles Co.	30- 1-11	3,177		sd. sh. drilling
Olympic Corp., No. 1 Calabasas, Los Angeles Co.	18- 1-17	5,695		redrilling
Ness Pet., No. 1 Newport, Orange Co.	21- 6-10	4,910		suspended
Hall, H. L., No. 1 Newport, Orange Co.	20- 6-10	790		suspended
Gesell, T. F., No. 1 Newport, Orange Co.	29- 6-10	885		cleaning out
Standard, No. 1 Newport, Orange Co.	26- 6-10	3,760		hd. sd. drilling
Borderland Oil Co., No. 1 Encinitas, San Diego Co.	12-12- 4	2,519		suspended
Borderland Oil Co., No. 1 Point Loma, San Diego Co.	30-16- 3	4,175		suspended
Carr, O. K., No. 1 Capistrano, San Diego Co.	13- 8- 8	5,250		redrilling
Grey, H. H., No. 1 Redlands, San Bernardino Co.	25- 1- 2	2,392		suspended
San-Col Oil Co., No. 1 Colton, San Bernardino Co.	18- 1- 4	240		suspended
Western Gulf, No. 1 Santa Ana, Orange Co.	12- 3- 8	1,598		br. sh. drilling
The Texas Company, No. 1 Olive, Orange Co.	7- 4- 9	2,998		sd. sh. drilling

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well, location—	S-T-R	Depth	Status—
Standard, No. 1 Point Conception, Santa Barbara Co.	X- 5-34	6,819	to abandon
Fields Gas Co., No. 1 Santa Maria, Santa Barbara Co.	8- 9-33	5,570	suspended
Western Gulf, No. 1 Santa Maria, Santa Barbara Co.	5- 9-33	5,360	br. sh. drilling
Barnsdall, No. 1 Gato Ridge, Santa Barbara Co.	9- 8-32	6,050	fishing
Midwest Oil Co., No. 1 Los Alamos, Santa Barbara Co.	2- 7-33	1,800	suspended
General Pet., No. 1 Goleta, Santa Barbara Co.	21- 4-28	4,533	gas—shut in
General Pet., No. 2 Goleta, Santa Barbara Co.	21- 4-28	4,350	gas—shut in
General Pet., No. 3 Goleta, Santa Barbara Co.	21- 4-28	4,180	cleaning out
General Pet., No. 134 Goleta, Santa Barbara Co.	21- 4-28	1,485	suspended
General Pet., No. 136 Goleta, Santa Barbara Co.	21- 4-28	1,016	suspended
General Pet., No. 137 Goleta, Santa Barbara Co.	21- 4-28	1,026	suspended
General Pet., No. 138 Goleta, Santa Barbara Co.	21- 4-28	4,931	suspended
General Pet., No. 139 Goleta, Santa Barbara Co.	21- 4-28	1,035	suspended
General Pet., No. 143 Goteta, Santa Barbara Co.	21- 4-28	1,040	suspended
Boles Oil Co., No. 140 Goleta, Santa Barbara Co.	22- 4-28	1,040	suspended
U. S. Pet., No. 141 Goleta, Santa Barbara Co.	20- 4-28	1,035	suspended
U. S. Pet., No. 142 Goleta, Santa Barbara Co.	20- 4-28	1,032	suspended
U. S. Pet., No. 143 Goleta, Santa Barbara Co.	20- 4-28	1,019	suspended
El Camino, No. 149 Goleta Tideland, Santa Barbara Co.	22- 4-28	1,035	suspended
Bolsa Chica, No. 191 Goleta, Santa Barbara Co.	24- 4-29	4,191	recemented
Caldwell Brown, No. 159 Goleta, Santa Barbara Co.	24- 4-29	1,040	suspended
Cochran, J. H., No. 1 Naples, Santa Barbara Co.	7- 4-29	4,874	sd. sh. drilling
Johnson, George, No. 1 Goleta, Santa Barbara Co.	X- 4-28	4,089	suspended
Prairie Oil Co., No. 1 Capitan, Santa Barbara Co.	32- 5-30	2,100	sd. sh. drilling
Cuyama Oil Corp., No. 1 Cuyama, Santa Barbara Co.	12-10-27	rig	suspended
Hart Pet. Co., No. 1 Cuyama, Santa Barbara Co.	27-10-26	....	material
Wildcat Oil Co., No. 1 Santa Maria, Santa Barbara Co.	20-10-35	5,500	suspended
Pacific Western, No. 1 Gibraltar, Santa Barbara Co.	14- 5-27	2,345	suspended
Prairie Oil & Gas Co., No. 1 Ventura, Ventura Co.	30- 3-22	5,380	br. sh. drilling
Associated, No. 1 Rincon Creek, Ventura Co.	19- 4-24	2,080	suspended
C. C. M. O. Co., No. 2-A Rincon, Ventura Co.	23- 3-24	7,975	br. sh. drilling
Continental, No. 1 Rincon, Ventura Co.	23- 3-24	mtl.	building rig
Associated, No. 1 Fillmore, Ventura Co.	16- 4-20	....	location
Pure Oil Co., No. 1 S. P. Canyon, Ventura Co.	15- 4-21	2,591	suspended
Superior Oil Co., No. 1 Sespe, Ventura Co.	14- 4-21	5,375	sd. sh. drilling
Lockwood Valley Oil Co., Well No. 1, Ventura Co.	32- 8-21	1,015	suspended
Nordon Oil Co., No. 1-A Buttonwillow, Kern Co.	7-29-24	6,590	fishing
Kent & McDonald, No. 1 Temblor Hills, Kern Co.	3-32-22	1,511	br. sh. drilling
Federal Drlg. Co., No. 1 Buena Vista, Kern Co.	20-31-24	5,230	cleaning out
General Pet., No. 1 Belridge, Kern Co.	30-28-21	3,460	redrilling
The Texas Company, No. 1 Belridge, Kern Co.	22-27-20	4,100	sd. sh. drilling
Richfield, No. 1 Belridge, Kern Co.	20-27-20	6,639	plug to 6,404
Standard, No. 2 Belridge, Kern Co.	31-27-20	4,280	sd. sh. drilling
Ohio Oil Co., No. 1 Belridge, Kern Co.	36-27-20	5,190	br. sh. drilling
Reward Oil Co., No. 1 Belridge, Kern Co.	34-27-20	3,370	sd. sh. drilling
Union, No. 17 Belridge, Kern Co.	36-27-20	4,760	br. sh. drilling
Union, No. 1 Bacon-Belridge, Kern Co.	21-28-20	1,300	sd. sh. drilling
Casa Mira Oil Co., No. 1 Belridge, Kern Co.	29-28-20	mtl.	building rig
Tom Cannon, No. 1 Belridge, Kern Co.	18-28-22	mtl.	building rig
Wallace, K. C., No. 1 Belridge, Kern Co.	32-29-21	4,100	sd. sh. drilling
Rio Cal. Pet., No. 1 Shale, Kern Co.	2-27-18	2,355	suspended
Wicker, Sy., No. 1 Arvin, Kern Co.	12-30-28	mtl.	building rig
Shell, No. 1 Weed Patch, Kern Co.	29-30-29	7,000	hd. sd. drilling
Shell, No. 2 Weed Patch, Kern Co.	29-30-29	5,300	sd. sh. drilling
Shell, No. 3 Weed Patch, Kern Co.	32-30-29	1,612	sd. sh. drilling
Mohawk Oil Co., No. 1 Weed Patch, Kern Co.	32-30-29	5,966	recemented
Standard, No. 1 Devils Den, Kern Co.	14-25-18	1,574	redrilling
Wellport Oil Co., No. 1 Devils Den, Kings Co.	9-24-17	3,940	suspended
Shell, No. 1 Semitropic, Kern Co.	17-27-23	9,298	hd. sd. drilling
Cities Service, No. 1 Wasco, Kern Co.	16-28-24	1,880	core hole
C. C. M. O. Co., No. 1 Jasmine, Kern Co.	31-28-25	876	sd. drilling
Moran & DeCamp, No. 1 Mojave, Kern Co.	26-10-14	750	suspended
Meridan Oil Co., No. 1 Antelope, Kern Co.	11- 9-15	3,804	suspended
Ritchie, J. J., No. 1 Tejon, Kern Co.	33-11-19	5,530	suspended
Associated, No. 1 Jacalitos, Fresno Co.	22-21-15	3,750	sd. sh. drilling
Carruthers Oil Co., No. 1 Fresno, Fresno Co.	4-17-20	rig	suspended
Miracle Oil Co., No. 1 Cuyama, San Luis Obispo Co.	17-10-25	514	suspended
Panorama Oil Co., Well No. 1, San Luis Obispo Co.	7-31-21	4,010	suspended
Latin Amer. Pet., No. 1 Shandon, San Luis Obispo Co.	21-27-15	4,525	recemented
Paso Robles Syn., No. 1 Creston, San Luis Obispo Co.	21-27-21	3,941	suspended
Continental, No. 1 San Miguel, San Luis Obispo Co.	26-25-11	3,780	hd. sd. drilling
Schilling, C., No. 1 Atascadero, San Luis Obispo Co.	24-28-12	916	suspended
Pismo Dome Oil Co., No. 1 Edna, San Luis Obispo Co.	5-31-13	3,010	cleaning out
Shockley, C., No. 1 Pismo, San Luis Obispo Co.	13-32-13	2,530	suspended
Pacific Inland, Well No. 1, Monterey Co.	19-23-15	1,044	hd. sd. drilling
Brown, F. A., No. 1 Parkfield, Monterey Co.	15-23-14	816	suspended
O'Donnell, J. E., No. 1 Dudley Ridge, Kings Co.	7-23-20	1,635	gas well—idle
Murphy Oil Co., No. 1 Dudley Ridge, Kings Co.	20-23-20	3,194	sd. sh. drilling
Kettleman Dev. Co., No. 1 Tulare Lake, Kings Co.	32-22-19	....	location
Kettleman Lakeview, No. 1 Tulare Lake, Kings Co.	11-23-19	1,304	gas well—idle
Purman, T. H., No. 1 Reef Ridge, Kings Co.	36-23-17	2,312	sd. sh. drilling
Seymour, L. W., No. 1 Avenal, Kings Co.	10-23-16	1,148	suspended
Twin State Oil Co., No. 1 Point Arena, Mendocino Co.	14-12-17	5,729	sd. sh. drilling
Orinda Pet., Well No. 1, Contra Costa Co.	32- 1- 3	1,370	hd. sd. drilling
White, Roy, No. 1 Pixley, Tulare Co.	8-23-26	4,495	suspended
Kettleman Trust, No. 1 Porterville, Tulare Co.	21-22-27	940	suspended
Enterprise Oil Co., No. 1 Porterville, Tulare Co.	29-23-28	820	abandoned
Grand View Oil Co., No. 1 Porterville, Tulare Co.	8-23-28	992	suspended
Inland Valley Oil Co., No. 1 Visalia, Tulare Co.	24-17-24	2,060	suspended
Colusa Oil Co., No. 1 Bush, Colusa Co.	31-15- 4	811	hd. sd. drilling
Getty Oil Co., No. 1 Nigger Heaven, Yolo Co.	23-12- 3	2,050	suspended
Oakdale Oil Co., No. 1 Oakdale, Stanislaus Co.	3- 2-10	4,100	hd. sd. drilling
Orland Oil Synd., No. 1 Orland, Tehama Co.	31-23- 3	2,345	cemented

Plan Proration for East Central Texas

Joint Committee to Meet at Longview, February 26, Following Meeting of East Central Texas Committee on Same Day

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Feb. 2.—First blood has been drawn in regard to proration in East Central Texas, even before the three new and separate areas have even been given pipe line outlets, or any pipe line nominations have been made. The skirmish came about as a result of a called meeting in Dallas on January 31 at which W. M. Blair, independent operator, presided, and a discussion was held in regard to getting some form of proration measure into action. The Central Proration Committee, of which R. R. Penn is chairman, was invited to attend, and several did attend. Mr. Penn addressing the meeting attacking H. F. Sinclair, chairman of the Sinclair Consolidated Oil Corp., for certain alleged remarks while on an inspection trip in East Central Texas on January 30 and 31. Mr. Penn also attacked what he called the "bootleg" oil operators who are already purchasing oil in the Joiner Field, Rusk County, urging that the Railroad Commission of Texas be empowered to deal with them drastically.

An advisory committee of 15 was appointed at the Dallas meeting, with a subcommittee of 6 to confer with a committee of 6 from the Central Proration Committee and 6 from the East Texas committee of 25 members. The joint committee of 18, representating operators, company men, lease and royalty owners, will meet in Longview on the afternoon of February 26, following a meeting of the 25 members of the East Texas committee at noon in that city.

All operators attending the Dallas meeting declared in favor of some form of proration to be put in force at once, but it is known there are many other independent operators in the East Texas areas who are against proration, consequently many snags will probably be struck in the Longview meeting.

The following were appointed on the committees to meet in Longview: W. B. Hamilton, chairman; J. S. Bridwell, E. G. Allen, Shell Petroleum Corp.; Jake Hamon, Jr., H. R. Dickinson and John R. Suman, Humble Oil & Refining Co. The Producers' advisory committee is as follows: H. L. Hunt, H. R. Dickinson, W. B. Hamilton, Gene Fitzpatrick, Frank D. Foster, Mr. Allen, John F. O'Donohoe, Jake Hamon, Jr., W. L. Todd, John B. Sweeney, P. R. Smith, George Calvert, Mr. Bridwell, Mr. Suman and E. O. Tennant. The first six compose the producers' subcommittee.

During the week H. F. Sinclair, chairman, and a party of officials of the Sinclair Consolidated Oil Corp. made an inspection trip through the three newly discovered East Central Texas areas, also looking over leases which are held by the company throughout the various counties surrounding the pools. Mr. Sinclair remarked that the district warranted investigating by executives, and that he believed it to be one of the largest potential producing districts in the country.

The Joiner Pool, Rusk County, was extended approximately 2 miles to the southwest and about 1 mile due west this week, when Lide and others' No. 1 Young in the Maria Prue Survey was completed for an initial production of 125 bbls. the first hour through tubing, producing 37.4 gravity oil. Total depth was 3,688 feet, and top of the sand 3,677 feet. Haynes and others' No. 1 Brown, was completed for an initial of 577 bbls. in five hours at a total depth of 3,672 feet through tubing; top of the sand was cored at 3,662 feet. Both wells are shut in for pipe line connections. Two other wells were brought in for production but not completed, raising the total of producing wells in the field to 2.

Rusco Oil Co.'s No. 1 Daisy Bradford, approximately one-half mile south of the Joiner discovery well, marks the limits of production in that direction as this well swabbed only 80 bbls. in three days at a total depth of 3,626 feet. It cored the top of the sand at 3,530-41 feet. The pool is now defined on the northeast, east and south, and is extended to the northwest, southwest and west. Several other tests are shut down with casing cemented, and should be completed within the next week or 10 days.

Seventeen locations were made in the Joiner Pool this week, and it will be an almost impossible task to keep up with all drilling wells and new locations in the next few weeks, as offsets to those producing and coming in will be drilled and many other operators will desire to test their leases. Consequently each week will doubtless see locations staked in bunches, the majority being located around the extension producers and in the Deep Rock or first western extension area, approximately 1 mile west of the Joiner discovery well.

Lide and others' extension and Haynes and others' extension this week have not shown up on production as many expected, since it was generally conceded the sand was thickening in this direction from the pool, and that larger wells could be expected to the west. However, when the wells are opened for a later test they may prove larger, as the Foster, Deep Rock Oil Co.'s No. 1 Ashby, several days after it was shut down, more than doubled its production on the test.

Ten derricks are up and tests drilling in the Bateman area, and other rigs are being moved in on locations, making this area look as if it would soon be "neck and neck" in the drilling race with the Joiner Field. Several tests are being drilled between the two areas, and rigs have also been moved in on three locations between the Bateman area, and the Farrell-Lathrop area, the field which was opened 6 miles northwest of Longview in Gregg County last week by Farrell, Arkansas Fuel Oil Co. and others on the Lathrop farm in the William Robinson Survey, approximately 13 miles northeast of the Bateman area in northern Rusk County. When these intervening tests are completed the industry will know whether the three separate areas are to be linked by production forming the largest field in the world, or whether they are three separate and distinct pools. Consequently these tests will be the most interesting and closely watched during the next three weeks, especially when they reach depths where the chalks are expected, and where the Woodbine sand is expected to be found.

Arkansas and Louisiana operators are prone to call the producing horizon, in these fields, the Tokio, from which production is found in those two States, but Fault Zone and Texas operators are of the firm belief it is the Woodbine sand from which wells in the Van Field, Van Zandt County, to the west, and Boggy Creek to the east, produce. The oil is of similar texture, same appearance and high gravity as the Van Field which was discovered one year previous to the Joiner Field discovery, the discovery well which again brought attention to East Central Texas, especially to the eastern side of the salt basin formerly condemned as dry.

The Humble Oil & Refining Co. has two rigs up on the southern part of its Lou Della Crim lease in the E. G. Sevier Survey, offsetting two drilling tests, and is moving in material on its Ben Laird lease offsetting another drilling test of H. S. Smith. There are 10 rigs up and drilling in this area, surrounding the discovery well drilled by Ed. W. Bateman of Fort Worth who sold to the Humble Oil & Refining Co., which is now engaged in building an 8-inch line into the pool from the pumping station being constructed southwest of Longview on its Van-Louisiana 10-inch welded line.

Farrell, Arkansas Fuel Oil Co. and others' No. 1 Lathrop, in the William Robinson Survey, Gregg County, was opened for a 30-minute test on January 26 and gauged at the rate of 17,364 bbls. in 24 hours, flowing wide open. A 6-inch screw line is now completed from this well to a point on the Texas & Pacific Railroad near Willow Springs where a 40-car loading rack is under construction. Oil will be shipped out to the Louisiana Oil & Refining Co.'s refinery at Shreveport, La., a distance of around 70 miles, to which place the Arkansas Fuel Oil Co. will lay a line, a reported 8-inch, starting immediately. The well was allowed to produce only 200 bbls. on February 1, and 187 bbls. during the 24 hours ending at 7 a.m., February 2, being pinched in all the time to around 5 bbls. per hour or less, the oil going into four 1,000-bbl. steel tanks.

Liner and 2½-inch tubing has been run in Humble Oil & Refining Co.'s No. 1 Crim (the Bateman discovery well), with 425 pounds casing pressure.

Clark and others' (Mamie Hammond) No. 1 Hamby, approximately 4 miles northwest of the Farrell-Lathrop discovery, is the most closely watched test in Gregg County at present, and during this week will be especially interesting as it should reach the producing horizon. Late reports had it drilling at 2,950 feet in shale.

Several small refineries have been rumored for Overton, Tyler and Longview, with several names mentioned in conjunction with them, but the one for Tyler looks like the most logical at present. This may be constructed by G. L. Rowsey, president of the Taylor Refining Co., Taylor, Tex., and E. L. Chapman of Fort Worth.

The Primrose Petroleum Co. of Dallas may also erect a refinery at Tyler, and officials of that company have already made an investigation of the city with such a plan in mind. If either of these two plants is built in Tyler a pipe line will be laid from the Joiner Field, a distance of approximately 19 miles air-line to serve the plant.

F. W. Burford, Charles Kolp and Frank Foster have 1½ miles of 4-inch line laid from the Joiner Field to a loading rack at Friar Switch on the I. & G. N. Railroad and will parallel this line later with another 4-inch. It will be approximately 3½ miles in length when completed, and will give the fourth outlet to the field.

COMPLETIONS IN EAST CENTRAL TEXAS

Gregg County

Arkansas Fuel Oil Co., Farrell and others' No. 1 Lathrop, initial production

(Continued on Page 115)

EAST CENTRAL TEXAS WILDCATS

Week Ending February 2

CHEROKEE COUNTY

Lloyd Oil Corp.'s No. 1 Tommie, 200 ft. S of CNL of 59.2-ac. tract in William George Sur., 2 miles SW of Troup ..... Rig (rotary).

McDonald Bros.' No. 1 Newton, center of 113-ac. tract, Thomas Quevedo Sur., 3 miles N of Jacksonville .... Moving in material.

Moore & Baker's No. 1 M. M. Tommie, 945 ft. N and 1,306 ft. E, William George Sur. ..... Waiting on csg.; T. D. 180 ft.

DELTA COUNTY

Delta Development Co.'s No. 2 Hays Kinney, 300 ft. S of No. 1 Cooper, Townsite Sur. ..... Drlg. 1,558 ft.

D. S. Hoods' No. 1 J. J. Balser, 185 ft. from S and 580 ft. W of Balser 40-ac. tract in SE cor. T. E. Laddin Sur. ..... Trying to set csg.; T. D. 1,818 ft.

Everett Drlg. Co.'s No. 1 Sansivy, 1,320 ft. N and 1,320 ft. W. J. B. Craig Sur. ..... Shut down 2,130 ft.

Worthington and Stedman's No. 1 W. H. Dejehett, 150 ft. from S and 776 ft. from W of 52-ac. tract, E. Chick Sur. ..... Oil sand 1,578-85 ft.; T. D. 1,585 ft.

FANNIN COUNTY

E. A. Parsons et al's No. 1 Morgan in the English Sur., 3 miles NE of Savoy ..... Shut down 3,481 ft.

GREGG COUNTY

Eslick's No. 1 Church Lot, 150 ft. N and 150 ft. W of N 15 acres, Dolores Sanches Sur. ..... Moving in material.

Bell & Graddy's No. 1 M. George or (Daniels), 225 ft. S and 650 ft. W of 26-ac. tract, Mary Van Winkle Sur. ..... Location.

D. H. Felder's No. 1 Elder (Trip), 200 ft. N and 200 ft. W of Elder tract, J. W. McCorry Sur. ..... Rigging up.

Foster et al's No. 1 Fisher, 200 ft. N and 200 ft. W of E 98-ac. tract, John Ruddle Sur. ..... Moving in material.

M. S. Hammond's No. 1 J. M. Hamby, 278 ft. from E line, 1,667 ft. S of Hamby 3,800-ac. tract, Martin Lant Sur. ..... Drlg. 2,920 ft.; base Pecan Gap 2,835 ft.

George McCamey et al's No. 1 J. F. Richards, 150 ft. from N and 150 ft. from W of 50-ac. tract, Mary Van Winkle Sur. ..... Derrick.

HENDERSON COUNTY

E. L. Chapman's No. 3 Cade, 1,560 ft. from N and 750 ft. W, J. B. Dorsey Sur. ..... Drlg. 4,402 ft.

HUNT COUNTY

Mamie S. Hammond's No. 1 W. H. Adams, center of survey, W of Branson Sur., J. A. McFarland Sur. ..... Derrick blew down.

LIMESTONE COUNTY

Ben Segall & Hundall's No. 1 A. E. Smith, 750 ft. from E and 300 ft. from S, M. N. Miller Sur. ..... Drlg. 2,652 ft.

LAMAR COUNTY

Everett & Allen's No. 1 Guest, 250 ft. S and 2,046 ft E of 100-ac. tract, L. Roberts Sur. ..... Drlg. 1,370 ft.

NAVARRO COUNTY

Young et al's No. 1 Farmer, 700 ft. from S and 400 ft. from E of 110-ac. farm in Finley Sur. ..... Shut down 960 ft.

POLK COUNTY

Sunshine Oil Co.'s No. 1 J. A. Collins, 313 ft. from NE, 150 ft. from SE at right angles to line, A. Viesca Sur. ..... Shut down 3,350 ft.

RAINS COUNTY

Everett & Morrison's No. 1 Franklin, 640 ft. from S and E of 75-ac. tract in John Christian Sur., 6 miles SE of Emory ..... Spudded and shut down.

(Continued on Page 86)

Andrews County Well Has Showing

Western Crane County Well Flows 60 Bbls. of Oil and 122 Bbls. of Water. New Producing Area in Carson County

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Feb. 2.—Deep Rock Oil Co. and others' No. 1 Kuykendall, in Section 24, Block A-46, west of the discovery well in Andrews County, encountered a showing of oil at 4,240 feet during the week with an increase at 4,265 feet, and another in sandy lime at 4,285 feet filling up 500 to 600 feet with fluid. In a four-hour bailing test the fluid was lowered only 100 feet. There was an estimated 1,000,000 feet of gas coming with the oil, the oil testing 33.4 gravity. It is now drilling ahead at 4,290 feet. This well will mark about a 2-mile western extension to the Deep Rock or Ogden area if it proves a producer, but as the former wells were but small ones, this test is not creating much excitement.

Cranfill Brothers and Gulf Production Co.'s No. 1 Tubb in Section 81, Block B-27, western Crane County, is drilling ahead at 4,700 feet in gray lime having a show of water at 4,622-25 feet. It flowed 60 bbls. of oil and 122 bbls. water during 24 hours ending 7 a. m. February 1, and 167 bbls. fluid, 55 per cent water in the same length of time ending 7 a. m. today.

Cranfill Brothers and others' No. 1 Muir in Section 23, same block and survey, is drilling at 4,275 feet in lime with no showings of oil. This test is approximately 2 miles southwest of the former named well in the same area.

Big Lake's Largest

Group No. 1 Oil Corp.'s No. 4-B University, the last and largest deep producer to be completed in the Big Lake Field, Reagan County, set another peak during the week of January 31 when it flowed 7,958 bbls. of oil with 64,600,000 feet of gas with 775 pounds pressure on it. This well has not yet been tubed, and is gaining gradually, coming in as the largest deep producer, and gaining in production each day. The well will be tubed immediately as tubing is on the ground ready for it, and the Railroad Commission's orders are that all the wells must be tubed. The Southern States Co., Inc., of Shreveport, La., will do the tubing. This company tubed the other deep wells in the field. Six of the eight deep wells gained in production during the week. Group No. 1 Oil Corp.'s No. 2-B, which has been killed since December to deepen and tube, is still drilling by pipe tools. Total depth is 8,489 feet.

The Big Lake Oil Co.'s No. 1-C, 5-C and 2-C University have also been making gains in production, but as the largest of these is good for only slightly better than 2,000 bbls. they do not attract the attention that No. 4-B does.

The West Texas production report showed a gain of 5,721 bbls. this week to 250,578 bbls. over the previous week's total of 244,857 bbls., Reagan County making practically all of the gain, Group No. 1 Oil Corp.'s No. 4-B University effecting the increase.

Total daily average distribution in West Texas fell off from 356,710 bbls. during the past period to 324,845 this period, a drop of almost 32,000 bbls. per day, production holding to about an even keel during the two periods (including Lea County, New Mexico). Deliveries to local refineries showed a consequent decrease.

NORTH TEXAS AND PANHANDLE

A new oil-producing area was promised for Carson County this week when Krebs and Jordan's No. 1 Barnard in Section 24, Block 4, I.&G.N. Survey, 4 miles southwest of the Gulf-Noel Field, topped a pay horizon at 3,179 feet, striking an estimated 4,000,000 feet of gas with around 100 bbls. of oil per day. The well will be tested during the week.

One more small well was completed for the Taconian or Sullivan area, western Gray County, this week. Midgray Oil Co.'s No. 1 McCullough made only 20 bbls. of oil and 20 bbls. of water on initial production at a total depth of 3,222 feet after a 250-quart shot from 3,150-3,220 feet. Three large wells, and several small wells, with gassers mixed in, make this pool an exceptionally erratic one, and not especially promising.

Many locations were made in the Wichita Falls district regardless of the fact that the pipe line connection situation is not much better than it was several weeks ago, and that the possibility of getting a connection for a new well is rather remote. Distress oil is still going to local refineries in that district, 23,000 bbls. going to the Wichita Falls stills during the week, 17,428 bbls. of it at the posted price and 5,572 bbls. under the market price.

Operators of the district met at Wichita Falls on January 29 to discuss plans for setting new proration factors in that district to take effect February 1. If this new plan goes into effect only 45 per cent of the potential which is subject to proration will be run, a decrease of 10 per cent from the amount asked from the Railroad Commission last week.

Total potential production of the Panhandle district is now 142,457 bbls. from 1,972 wells, with an outlet of 40,000 bbls. per day.

Coleman County Strike

Barney Carter's No. 1 Parker in a 480-acre tract, Section 23, T.&N.O. Survey, Coleman County, is another wildcat strike for that county, topping an oil sand at 3,593 feet, and flowing by heads every half hour from a total depth of 3,605 feet. It is about 4 miles southeast of the nearest production near Goldsboro. The Amerada Petroleum Corp. owns a large block adjoining the discovery on the north.

Warren and Hays' No. 1 Johnson in southern Callahan County, Section 146, G.H.&H. Survey, which topped an oil sand last week, opening a new producing area from 4,191-94 feet, swabbed only 52 bbls. on a two-day test this week, not looking especially good at this writing. Gravity of the oil is 42 degrees.

The Texas Pipe Line Co. is laying a combination three-four inch line from R. G. Milliken Survey No. 142, Brown County, to the Burkett Pool in Coleman County where there is an allowable of 300 bbls. per day from four wells and four shut down on top of sand. This will be of great help to this new extension which was opened by the Arcadia Refining Co. a few months ago.

COMPLETIONS IN WEST TEXAS

Crockett County

John W. Dieringer and others' No. 1 Banscorew estate, dry and abandoned, total depth 2,505 feet.

Crane County

Continental Oil Co.'s No. 1-C Cowden Brothers & Co., top pay 2,355 feet, total depth 2,490 feet, shot with 200 quarts from 2,350-2,490 feet, initial production 150 bbls. in 12 hours.

Howard County

Magnolia Petroleum Co.'s No. 5 Hyman, top pay 2,831 feet, total depth 3,150 feet, increase pay at 2,857 feet, 2,875-85 feet, 2,906-22 feet, and 2,950-60 feet, plugged back to 2,930 feet, initial production 20 bbls. Same company's No. 1 Kelly-Roberts, oil show 1,675-95 feet, sand 1,695-1,700 feet, initial production 15 bbls., total depth 1,711 feet.

Mitchell County

Earl Morrison and others' No. 2 Morrison, top pay 3,038-75 feet, shot with 270 quarts from 3,020-92 feet, initial production 5 bbls., total depth 3,112 feet. Earl Morrison's No. 1 Poe and others, temporarily abandoned, total depth 10 feet.

Loving County

California Oil Co.'s No. 6 Reagan and McElvain, top pay 4,228 feet, total depth 4,268 feet, plugged back to 4,265 feet, shot with 160 quarts from 4,122-4,263 feet, initial production 153 bbls.

Pecos County

Sides and Cloyd's No. 2 Blackstone and Slaughter, dry and abandoned, total depth 3,405 feet.

Reagan County

Group No. 1 Oil Corp.'s No. 4-B University, top pay 8,446 feet, total depth 8,587 feet, initial production 1,693 bbls. the first 10 hours, flowed 7,341 bbls. in 24 hours ending 7 a.m., January 27, with 62,617,000 feet of gas.

Upton County

C. C. Duffey and others' No. 3 McClintic, top pay 2,825 feet, shot with 480 quarts from 2,810-3,003 feet, initial production 500 bbls., total depth 3,003 feet. Weekly Oil Corp. and others' No. 1 McClintic, top pay 2,855 feet, shot with 500 quarts from 2,855-3,044 feet, initial production 186 bbls. first 12 hours, total depth 3,004 feet.

Menard County

Barnett and others' No. 4 Callon City, temporarily abandoned location.

Taylor County

Eastland Oil Co. and others' No. 2 Hunter, total depth 2,755 feet, plugged

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WILDCAT OPERATIONS IN WEST TEXAS

Week Ended February 2

Company, well, farm name, section and block—	Remarks
ANDREWS COUNTY	
Deep Rock Oil Co. et al's No. 1 Kuykendall, 2,310 ft. from N and E of SW cor., Sec. 24, School Blk. A-46	Drlg. 4,110 ft.
Deep Rock Oil Co. et al's No. 1 King, 330 ft. from N and 2,310 ft. from E, Sec. 11, Blk. A-46	Top pay 4,335 ft.; flows every 4 days; temporarily abandoned; total depth 4,454 ft.
BREWSTER COUNTY	
Brewster Oil Co.'s No. 1 fee, 2,640 ft. S and 2,598 ft. E of NW cor., Sec. 45, Blk. G-15, G.C.&S.F. Sur.	Shut down 1,935 ft.
E. L. Chapman's No. 1 Skinner, C SW SE, Sec. 100, Blk. 2, G.C.&S.F. Sur.	Shut down 1,302 ft.
Trans-Pecos Oil & Gas Co.'s No. 1 Jones, 920 ft. from N and 2,500 ft. from E of Sec. 18, Blk. G-15, G.C.& S.F. Sur.	Shut down 2,660 ft.
Van McPhail's No. 1 McIntyre, SE cor., Sec. 59, Blk. 352, 7 miles S of Alpine	Shut down 1,750 ft.
COKE COUNTY	
Reed, Hitchens et al's No. 1 Duncan, 1,980 ft. from S and 1,680 ft. from E of Sec. 239, Blk. 2, H.&T.C. Sur. (4,500-ft. cable test)	Location.
CONCHO COUNTY	
Turner et al's No. 1 Borsig, 150 ft. from S of NE cor. G. Emmig Sur. 130, 6 miles W of Paint Rock	Shut down 1,520 ft.
CRANE COUNTY	
Cranfill Bros. and Gulf's No. 1 J. B. Tubb, 2,310 ft. from N and 330 ft. from E of Sec. 8, Blk. B-27, Public School Land	Drlg. 4,575 ft.
Cranfill Bros.' No. 1 Muir, 330 ft. from N and 2,310 ft. from W. Sec. 23, Blk. B-27, Public School Land	Drlg. 4,255 ft.
Duffey et al's No. 1 Cowden Bros. Co. (Gulf), 990 ft. S and W of C, Sec. 81, Blk. X, C.C.S.D.&R.G.N.G. Sur.	Rig.
CROCKETT COUNTY	
Doleman & Moore's No. 1 Perner, 3,135 ft. from N and 1,485 ft. from E of Sec. 36, Blk. 2, I.&G.N. Sur.	Spudded and shut down.
Magnolia Pet. Co.'s No. 2 Hoover, 2,310 ft. from S and 335 ft. from E of Sec. 2, Blk. FF, B.&B. Sur.	Swabbing and bailing 6 bbls. oil per day; total depth 2,056 ft.; shut down for storage.

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WILDCAT OPERATIONS IN TEXAS PANHANDLE

Week Ending February 2

Company, well, farm name, section and block—	Remarks—
CARSON COUNTY	
Continental Oil Co.'s No. 1-A Jordan, 330 ft. S, 1,320 ft. W, SW, Sec. 123, Blk. 4, I.&G.N. Sur.	Rigging up.
Interstate Prod. Co.'s No. 1 Burnett, C SE, Sec. 100, Blk. 4, I.&G.N. Sur.	Drlg. 1,640 ft.
Krebs & Barnard's No. 1 Barnard, 660 ft. S and W, NW, Sec. 24, Blk. 4, I.&G.N. Sur.	T.D. 3,180 ft; T.P. 3,179 ft; spraying 50 bbls. per day; shut in.
Ochsner et al's No. 1 Moore, 330 ft. S and E, NW NE, Sec. 20, Blk. 7, I.&G.N. Sur.	Rotary rig.
Plains Holding Co.'s No. 1 M. P. Co. fee, C N 10 ac., N½ NW SW, Sec. 40, Blk. 4, I.&G.N. Sur.	Rig on ground (rotary).
Plains Holding Co.'s No. 1-A Kolks, 660 ft. N, 710 ft. E, NE NE, Sec. 43, Blk. 4, I.&G.N. Sur.	Rigging up rotary.
Red River Gas Co.'s No. 5-A Bivins, 1,320 ft. S, 660 ft. E, Sec. 45, Blk. B-20, G.&M. Sur.	Rotary rig.
Texas Interstate P. L. Co.'s No. 1 Burnett, C S½ SE, Sec. 81, Blk. 5, I.&G.N. Sur.	Rigging up.
Texas Interstate P. L. Co.'s No. 1 Burnett, C E½ SE, Sec. 51, Blk. 5, I.&G.N. Sur.	Spudding.
CHILDRESS COUNTY	
C. L. Sloane et al's No. 1 B. P. Smith, Sec. 49, F. P. Knott lands	T.D. 5,000 ft.
COCHRAN COUNTY	
Continental Oil Co.'s No. 1-B Slaughter, 4,950 ft. N and E, of League 134, Armstrong County School Lands	Drlg. 840 ft.
COLLINGSWORTH COUNTY	
Dixon et al's No. 1 Bell, 330 ft. N, 1,320 ft. W, Sec. 102, Blk. 21, H.&G.N. Sur.	Fishing 525 ft.
COTTLE COUNTY	
Darby Oil Co. and Merry Bros. & Perrini's No. 1 Richards, 330 ft. NE, Sec. 13, B.S.&F. Sur.	Drlg. 2,005 ft.
GRAY COUNTY	
Adams, Prince et al's No. 1 Morse, 330 ft. NE SE, Sec. 6, Blk. 26, H.&G.N. Sur.	Estimated 7,000,000 ft. gas 2,059 ft; estimated 17,000,000 ft. gas 2,245-60 ft; T.D. 2,300 ft; rig burned; to rebuild.

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Biggest Gas Well in Shreveport Area

Zwolle District Has Its Largest Producer. Show of Oil in Shallow Test in Lafayette County, Arkansas. East Texas Play

By D. H. Bancroft
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., Feb. 2.—The biggest gas well yet brought in in Shreveport territory in the more than 25 years of its history, the largest producer in Zwolle, and a show of oil in a shallow test in Lafayette County, Arkansas, coming all in the same week, gave the fraternity a more optimistic frame of mind than it has enjoyed for some time. And these on top of the East Texas activity which has greatly stimulated things in this part of the Mid-Continent.

The gas well was the third completion in the Rodessa district of northwestern Caddo Parish, the second by United Production Co., and a far larger well than either of its predecessors. No accurate gauge has been made of United Production Co.'s No. 1 Wall, Section 33-23-16, but, partly gauged, partly estimated, it is figured good for 100,000,000 feet open flow. The gauge failed at 75,000,000 feet. Blowing wide open, it rocked 450 pounds, but, closed in for four minutes, it rocked up 2,330 pounds. In volume it is about five times as large as United's No. 1 French in Section 34 and as much larger in proportion than the discovery well which made about 11,000,000 feet. Rock pressures are approximately the same and so is the gasoline content, which runs close to 2,000 gallons to 1,000,000 feet. Total depth of No. 1 Wall is the same as No. 1 French, 5,522 feet, with the bottom in 12 feet of sand. Location is approximately 1,500 feet southwest of the discovery well and No. 1 French is 1,800 feet east of the discovery. The gas will be processed at United Production Co.'s Pine Island gasoline plant before being turned into the Monroe-Waskom-Beaumont line.

Zwolle Feature

Zwolle's feature well is Loring Oil Co.'s No. 15 Bowman-Hicks, SW NE, Section 2-7-12, a mile south of old production and half way between and half a mile from two smaller producers in one of the southeastern groups or "extensions." It was reported last week as a 20,000,000-foot gasser at 2,263 feet, but a few hours after completion it began flowing 41 gravity oil and quickly grew to 400 bbls. through 1⅛-inch choke. The last gauge taken it was flowing 352 bbls. through five-eighths inch choke. Top of the marl in this shallowest of all Zwolle producers was at 2,234 feet and top of the chalk at 2,244 feet. Tankage was insufficient to handle it and a 4-inch line was rushed by the Standard Pipe Line Co. A 24-hour gauge wide open will be interesting.

Lafayete County Well

Smitherman & McDonald's No. 1 Reed, NW NW, Section 16-15-22, Lafayette County, Arkansas, a rank wildcat in the northeastern corner of the county, just south of the Nevada County line, and approximately 15 miles southwest of Nevada County production, had 6 feet of oil sand at 1,186-92 feet and got one fourble of mud and oil, mostly oil, on drill stem test of the last 2 feet. The oil appears to be much the same as Nevada County heavy crude and 6-inch will be set for a standard test. Several years ago Humble Oil & Refining Co., in the course of drilling a long series of structure tests through southwestern Arkansas counties, got a show of oil in an offset to this wildcat but at 2,500 feet.

Still another southwest Arkansas wildcat attracted attention when Greer and others' No. 1 Greeson (formerly A. L. Buck and others), NW NW, Section 25-12-32, Little River County, about 15 miles west of Ashdown, picked up 2 feet of likely looking sand under 14 feet of broken sand and shale, total depth 2,914 feet. There is 160 feet of open hole and drill stem test with tools set at 2,770 feet developed 2,500 feet of salt water in 10 minutes and the wildcat is shut down for orders.

Other Zwolle Completions

Beside Loring Oil Co.'s big well, two other producers and four wildcats were completed in Zwolle. The same company's No. 14 Bowman-Hicks, SW SE, Section 33-8-12, old territory, pumped 350 bbls. initial from 2,495 feet, and Pelican Natural Gas Co.'s No. 7 Sabine Lumber Co., NE NE, Section 11-7-12, pumped at the rate of 40 bbls. for nine hours and then quit, total depth 2,399 feet. Tom David and others' No. 1 Smith, NE NE, Section 27-8-10, approximately 10 miles northeast of production, was dry and abandoned at 2,720 feet with a small show of gas at 2,700 feet, the only show it had made. McDaniels & Lieber's No. 2 Batson, SW SE, Section 16-8-12, 1½ miles northwest of nearest production, was abandoned at 2,625 feet after a show at that depth had raised hopes of production. It is offset on two sides by wells that made similar shows but failed to pay off and probably marks the end of efforts to obtain production in the immediate vicinity. Merritt and others' No. 1 Louisiana Long Leaf Lumber Co., NE NE, Section 33-8-11, 1½ miles north of the group of producers in Section 4-7-11, was dry and abandoned at 2,500 feet, and The Texas Company's No. 2 Stille, NE NW, Section 3-7-11, was dry and abandoned at 2,600 feet.

Davis and others have taken over the Polly lease, NE NE, Section 18-8-12, from Stacy and others and are rigging up to drill. Location is the farthest north in the Zwolle district and 1½ miles northwest of the McDaniels & Lieber failure. Far south of the field Wilson & Sons, drilling No. 1 Gandy-Garrett, NW SW, Section 4-5-12, are shut down at 2,460 feet after a show of gas at 2,360 feet, the first show of anything. R. L. Gay's No. 2-A Sabine Lumber Co., NE NW, Section 1-7-12, was dry at 2,334 feet and is drilling around 2,500 feet.

Palmer Corp. (United Production Co.) abandoned location for No. 1 Seubert, SW NE, Section 35-17-6, a semiwildcat on the north of Richland production. United then made location for No. 1-A Woolff, NW SW, Section 35-17-6, and No. 1-B Woolff, 1,980 feet north of the center of Section 34-17-6. Southern Carbon completed No. 2-B D. M. and M. McCoy, SE NE, Section 30-16-6, making an estimated 30,000,000 feet of gas from 2,448 feet and drove stakes for No. 1 C. M. Noble, 4,636 feet north and 2,254 feet west common corner, Sections 7, 8, 17 and 18 in Section 37-15-6, and for No. 1-B C. M. Noble, 2,966 feet north, 1,525 feet west, common corner of the same sections in Section 37. These are semiwildcats a short distance beyond southernmost production in the field.

Daily Average

Loring Oil Co.'s big well in Zwolle accounted for an increase of 1,555 bbls. in daily average runs from North Louisiana pools, but a decline of 335 bbls. from Arkansas pools held the net difference from last week's runs from the district as a whole to an increase of 1,220 bbls. Louisiana runs totaled 41,945 bbls. and Arkansas 50,665 bbls., shipments from the several pools being:

NORTH LOUISIANA	
Caddo, light	8,040
Caddo, heavy	2,740
Homer	3,370
Haynesville	5,420
DeSoto-Red River	2,790
Elm Grove	520
Bellevue	560
Cotton Valley	1,750
Urania	4,910
Pleasant Hill	385
Sarepta-Carterville	1,825
Zwolle	8,720
Holly	860
Total	41,890
Last week	40,390
Increase	1,500
ARKANSAS	
El Dorado	3,915
Smackover, light	4,510
Smackover, heavy	33,920
Stephens	820
Nevada County	1,020
Lisbon	800
Champagnolle	4,540
Bradley	60
Mount Holly	65
Urbana	875
Total	50,525
Last week	50,665
Decrease	140
Both states	92,415
Last week	91,055
Increase	1,360

Concordia Parish

Arkansas Natural Gas Corp. has taken over part of A. C. Glassell's block in

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LOUISIANA-ARKANSAS PROVEN AREAS

NORTH LOUISIANA

BOSSIER PARISH—BELLEVUE

Company, farm and location— Remarks—

H. I. Morgan's No. 12-B Kendrick, 2,440 ft. E, 1,720 ft. N, SW cor., Sec. 22-19-11 ..... Began drlg. Jan. 22; cmtd. 12½-in. 165 ft; losing returns.

BOSSIER PARISH—CARTERVILLE

Del.-La. Dev. Co.'s No. 6 Bollinger, 330 ft. S, 220 ft. W, NW cor., Lot 17, in Lot 16, Sec. 31-23-11 ..... Hole full oil; W.O.S.R; 15 ft. broken sand; T.D. 3,217 ft.

BOSSIER PARISH—SLIGO

United Prod. Co.'s No. 1 Treat et al, 600 ft. S, 705 ft. E, NW cor. NW NE, Sec. 14-17-12 ..... Cmtd. 6⅝-in. 1,710 ft.

CADDO PARISH—GREENWOOD

Calatex O. & G. Co.'s No. 1 Edgar, 1,460 ft. S, 1,900 ft. E, NW cor., Sec. 17-16-16 ..... Location.

Calatex O. & G. Co.'s No. 1 McAnn-Alfred, 1,310 ft. S, 970 ft. E, NW cor., Sec. 17-16-16 ..... Location.

Junior O. & G. Co.'s No. 1 Breard, 1,980 ft. W, 1,320 ft. N, SE cor., Sec. 9-18-16 ..... Cmtd. 6-in. 2,740 ft.

CADDO PARISH—OIL CITY

Trio Corp.'s No. 1 Levee Board, 212 ft. S, 500 ft. E, NW cor., Sec. 17-20-15 ..... Derrick.

CADDO PARISH—PINE ISLAND

Haynes Bros.' No. 2 Spell, 956 ft. W, 200 ft. N, SE cor. SE, Sec. 15-21-15 ..... Fishing bailer; T.D. 3,962 ft.

Shreveport Oil Corp.'s No. 7 Hicks, 1,100 ft. N, 1,200 ft. W, SE cor. NE NW, Sec. 32-21-15 ..... Began drlg. Jan. 22; cmtd. 10-in. 100 ft; drlg. 1,050 ft.

The Texas Co.'s No. 8 J. F. Herndon, 990 ft. N, 990 ft. W, SE cor. SW, Sec. 14-21-15 ..... Fishing D.S.; T.D. 3,902 ft.

CLAIBORNE PARISH—HOMER

La. Oil Ref. Corp.'s No. 1 Langston, 660 ft. S, 528 ft. E, NW cor. SW SW, Sec. 19-21-7 ..... Drlg. hard sand 3,296 ft.

DESOTO PARISH—HOLLY

Standard Oil Co. of La.'s No. 5-A Farmer, 300 ft. N, 350 ft. E, SW cor. SE SW, Sec. 32-14-13 ..... Drlg. shale and boulders 2,441 ft.

MOREHOUSE PARISH

Bahan & Bahan's No. 4 Feazel, 900 ft. W, 330 ft. S, NE cor., Sec. 2-20-4 ..... Began drlg. Jan. 21; cmtd. 12½-in. 162 ft; 8-in. 1,100 ft.

OUACHITA PARISH

Bahan & Bahan's No. 1 Smith, 249 ft. W, 535 ft. N, SE cor. SW, Sec. 24-18-9 ..... Rig up.

(Continued on Page 77)

WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Rotary operations unless otherwise designated)

NORTH LOUISIANA

BIENVILLE PARISH

Company, farm and location— Remarks—

Coyle Bros.' No. 1 Lawhon, 300 ft. N, 300 ft. E, SW cor. SE NE, Sec. 15-16-8 ..... Drlg. sandy lime 2,560 ft.

BOSSIER PARISH

Andrews & Davlin's No. 1 Nattin, 100 ft. N, 250 ft. W, C, Sec. 15-22-14 ..... Coring 1,781 ft.

Rombaugh et al's No. 1 Allison, SW SE, Sec. 10-19-13 ..... Set 6⅝-in. 1,031 ft; dry; arranging to deepen; T.D. 1,600 ft.

R. O. Roy's No. 1 W. H. Hodges, C NW NW, Sec. 19-16-10 Rig up.

CADDO PARISH

R. H. Libby's No. 1 Foster (was Gooch et al's), Sec. 29-15-16 ..... Cmtd. 12½-in. 60 ft; S.D. 1,600 ft.

Tex.-La. Prod. Co.'s No. 1 Wall, 2,175 ft. N, 1,980 ft. W, SE cor., Sec. 33-23-16 ..... Drlg. lime and shale 5,479 ft.

United Prod. Co.'s No. 1 Emmons, 1,337 ft. E, 660 ft. N, SW cor., Sec. 27-23-16 ..... Location.

CALDWELL PARISH

Hudson et al's No. 1 Burton, Sec. 35-12-2e ..... S.D. 2,600 ft.

CATAHOULA PARISH

National Drlg. Co.'s No. 1 Marsh McMiller, 70 ft. N, 100 ft. W, C, Sec. 26-9-6 ..... Tested S.W; W.O. 3,086 ft.

CLAIBORNE PARISH

Baird Bros. et al's No. 1 Whittaker, 600 ft. N, 400 ft. W, SE cor. NE, Sec. 30-20-7 ..... S.D. 2,200 ft.

Baugh et al's No. 1 Alexander, 330 ft. S, 330 ft. W, NE cor., Sec. 27-20-8 ..... S.D. 2,200 ft.

CONCORDIA PARISH

Joe Marr et al's No. 1 Maxwell, C, Sec. 35-3n-8e ..... S.D. 3,622 ft.

DESOTO PARISH

J. W. Clark's No. 1 Tidwell, 250 ft. S, 250 ft. E, NW cor. NW, Sec. 22-13-14 ..... Drlg. hard lime 3,468 ft.

Dupree-Fountain's No. 1 J. M. Nabors, 250 ft. S, 250 ft. W, NE cor. NW cor., Sec. 5-13-11 ..... Derrick.

S. A. Guy's No. 1 Dowling Bros., 469 ft. E, 382 ft. S, NW cor. NE, Sec. 31-14-14 ..... S.D; sandy shale 1,354 ft.

Keatchie O. & G. Co.'s No. 1 Hallie Smith (was H. E. Welchert's), NE SE, Sec. 31-14-15 ..... S.D; repairs 2,306 ft.

C. D. Neff et al's No. 1 H. P. Dowling, 240 ft. N, 240 ft. W, SE cor., Sec. 18-13-14 ..... Cored hard lime 2,825 ft.

(Continued on Page 77)

Pipe Line Construction News

PIPE CONTRACT PLACED FOR 275-MILE GAS LINE

CHICAGO, Feb. 2.—A. O. Smith Corp., Milwaukee, has received a $1,500,000 pipe order from the Engineers Public Service Co. for construction of part of a 275-mile natural gas line from El Paso, Tex., into Mexico, for the Western Gas Co., subsidiary of El Paso Natural Gas Co. The line will cost about $6,000,000, will be 12-inch pipe and eventually will have 900 pounds of pressure.

The contract awarded to the Smith Corp. is further evidence that oil and gas pipe line projects will be larger in 1931 than in 1930 despite the fact that the last year was the greatest in the history of the industry.

In addition to the contract just announced the Milwaukee pipe manufacturer has been working on a large tonnage for the Texas-Chicago gas line. The pipe for this project will be completed soon, it was announced by L. R. Smith, president of the company. The National Tube Co., subsidiary of the United States Steel Corp., recently took an order for 80,000 tons for a part of the Texas-Chicago line.

The new Texas to Mexico gas line will be extended from its present terminus at El Paso to Douglas and Bisbee, Ariz., and Cananea, Mexico. Companies to be served are the Phelps-Dodge Corp., Calumet and Arizona Mining Co., the Cananea Consolidated Copper Co., the Arizona Edison Co. and others in the adjacent territory.

Paul Kayser, president of the El Paso Natural Gas Co, stated that contracts for the use of natural gas had been signed by these companies, and that all money necessary for this important extension had been raised. In connection with the financing, Engineers Public Service Co. has obtained a 3-year option to buy stock control of the El Paso Natural Gas Co.

The design and plans are being prepared by Ford, Bacon & Davis, and the construction will be supervised by Stone & Webster Engineering Corp. The line is scheduled to be in operation by August 1 of this year. The route of the line will be through Deming, N. Mex.

Reports were heard in the Chicago steel market that the Southern Fuel Co. is considering purchase of 50,000 tons of steel pipe for a line from Kettleman Hills to Los Angeles. The Columbia Gas & Electric Co., which recently placed orders for 30,000 tons for a gas line from western Pennsylvania to Washington is understood to be considering adding 20,000 tons in April. The Standard Oil Co. of New York will require 5,100 tons for a New England gasoline line and an unnamed project in the Far West may take 30,000 tons. Youngstown Sheet & Tube Co. recently took 50,000 tons of pipe for a 200-mile project sponsored by the Columbia Gas & Electric Co.

PIPE ORDERS REPORTED

YOUNGSTOWN, Ohio, Jan. 31.—The Youngstown Sheet & Tube Co. has received an order for 2,370 tons of 6⅝-inch pipe from the Associated Oil Co. The pipe is to be used for a 55-mile oil line on the Pacific Coast.

The Sheet & Tube company also expects to participate in supplying pipe for a 200-mile 24-inch oil line from Kettleman Hills to Los Angeles to be started in April by the Southern Fuel Co.

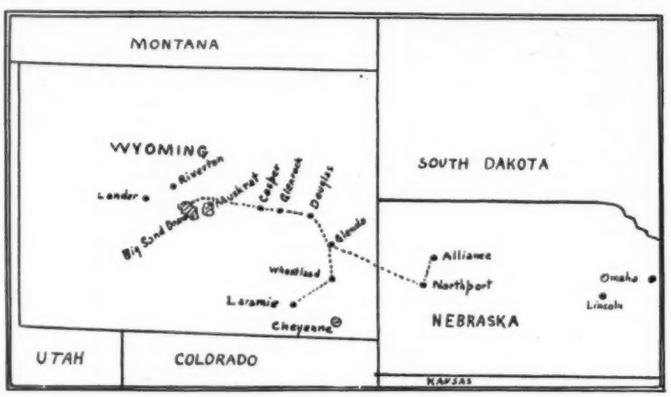
COOKE COUNTY LINE

FORT WORTH, Tex., Feb. 2.—Texas Pacific Coal & Oil Co. will lay a 4-inch surface laid pipe line from the Jacobs Pool, southeastern Cooke County, to a point on the Texas & Pacific Railroad near Pilot Point, a distance of approximately 3½ miles.

SURVEY 400-MILE WYOMING-NEBRASKA LINE

By T. R. Ingram

DENVER, Colo., Feb. 2.—Three engineering crews under the direction of Albert Parks, chief engineer of the New York Oil Co., are now in the field making preliminary surveys for the projected natural gas line of the North Central Gas Co. from the Big Sand Draw and Muskrat Fields in Fremont County, Wyoming, into western Nebraska and it is expected that actual construction work will begin early in the summer. A hearing was held by the Wyoming Public Utilities Commission at Cheyenne on January 8 on the North Central company's application for a certificate of convenience and necessity. Objections to the granting of the permit were filed by Frank England, who is seeking a permit to supply the town of Douglas, and the Montana Power Co. The Public Service Corp. of Nebraska, which proposes to serve part of the same territory with gas from Texas, was represented at the hearing, but offered no adverse testimony. The last named, it is understood, has taken the position that no permit is required for an interstate system. The commission gave all parties concerned 20 days in which to file briefs and it is expected a decision will be rendered early in February.



Tentative route of North Central Gas Co.'s project.

The projected system will take gas from the Big Sand Draw and Muskrat Fields in Fremont County in both of which the Producers & Refiners Corp., subsidiary of the Prairie Oil & Gas Co., is the principal operator. An agreement between the owners of gas rights in the sands of the Frontier formation for the unit operation of that horizon in Big Sand Draw was signed the past week and is awaiting the approval of the Secretary of the Interior. This field has an immense reserve of gas and testimony offered at the Cheyenne hearing was to the effect that the Muskrat Field has a reserve of 500,000,000,000 feet, or more than a 50-year supply for the cities and towns it is proposed to serve.

The New York Oil Co. at present has a 10-inch line from Big Sand Draw to Casper and this system continues on east to Glenrock. It supplies Casper, Glenrock, Hudson, Evansville, Lander, Mills and Riverton. It is proposed to loop this line with another from the Muskrat Field, 75 miles west of Casper, and continue this on to the east and southeast through Glenrock and Guernsey on the south side of the North Platte River and from that point on the north side of the river down through the North Platte Valley to Bridgeport and Alliance, Neb. Ultimately the line may be continued on to Lincoln and Omaha. A branch line will go from Glendo southward through Wheatland and Laramie. The towns to be served include Douglas, Glendo, Guernsey, Wheatland, Laramie, Lingle and Torrington, in Wyoming, Bridgeport, Scotts Bluff, Alliance and a number of other towns in Nebraska. Altogether the system will require about 400 miles of pipe line construction. The line probably will be composed of 10 and 8-inch pipe with a 6-inch lateral to Laramie, though some of these details are not yet available.

The North Central Gas Co. is a subsidiary of the New York Oil Co., which in turn is controlled by the Northern Utilities Co. George W. Crawford, chairman of the boards of the Columbia Gas & Electric and the Western Public Service companies; and C. A. Munroe and G. P. Gossler, directors in the Columbia company are members of the Northern Utilities board. The Western Public Service Co. is the holding concern for the natural gas from southwestern Wyoming into central Utah and which is to be extended into southern Idaho this summer. The headquarters of the New York Oil Co. are at Casper.

It is estimated that the system into Nebraska will furnish a market for at least 6,000,000,000 feet of gas per year. The Great Western Sugar Co. has seven sugar factories in this territory at Scotts Bluff, Gering, Bayard, Minatare, Mitchell and Lyman, Neb., and Wheatland, Wyo. These factories, it is estimated, will furnish a market for 40,000,000 feet a day during the operating season in the fall. This season lasts about 100 days. The Colorado Fuel & Iron Co. has large iron ore deposits in the Hartsville district in Wyoming and it is not unlikely that plans will be developed for smelting this ore in the district and shipping the pig iron to the steel mills at Pueblo. At present the ore is smelted in Colorado and involves a long freight haul.

NEW VENEZUELA LINE

NEW YORK, Feb. 2.—Creole Petroleum Co., Venezuelan subsidiary of the Standard Oil Co. (New Jersey), has completed a pipe line linking the eastern area of the Buchivacoa Field with the British Controlled Oilfields' pipe line system which transports the production of the El Mene Field. Creole is developing some of the Venezuelan holdings of British Controlled Oilfields, Ltd., and has recently brought in a number of producing wells at Las Palmas. The new pipe line runs from Las Palmas to Hombre Pintado, where it joins the British Controlled Oilfields' line.

ARKANSAS FUEL LAYING LINE IN GREGG COUNTY

FORT WORTH, Tex., Feb. 2.—The Arkansas Fuel Oil Co. which owns a large interest in the new discovery well northwest of Longview, Gregg County, and 3,500 acres of land around it, is laying approximately 3 miles of 6-inch line from the well to a 40-car loading rack on the Texas & Pacific Railroad. This is a screw line. An 8-inch line will be laid from the area, possibly tying into this 6-inch, to Sherveport, La., where its sister company, the Louisiana Oil & Refining Co. (subsidiary of the Cities Service Co.) has a refinery.

W. W. Holland, M. L. May and A. C. Page of Overton, Tex., are planning laying a 6-inch pipe line from the Joiner Field, Rusk County, to a loading rack at Overton, a distance of around 6 miles, but so far no contracts have been closed on this line, and it is only in the tentative stage.

The Dixie-Gulf Gas Co., operating in East Central Texas, is laying gathering and transporting lines in the Bateman and Joiner Fields, Rusk County, and will serve these two areas in both capacities, as transporter and purchaser of gas in the fields. These lines are 4 and 6-inch which are lateral lines running from its 8 and 10-inch main lines serving the district.

HORSE CAVE AWAITS LEGRANDE POOL LINE

BOWLING GREEN, Ky., Feb. 2.—The Producers Pipe Line Co., which is already in operation in other parts of western Kentucky, has closed contract for a 4-inch line from the Legrande Field to Horse Cave and will erect its tanks and trackage on the Pritchard land on the L.&N. Railroad north of the Stoll property. James C. Ellis of Owensboro and Fred Miles, Louisville, head this company. The output of this line has been contracted to the Louisville Refinery Co. Pipe will arrive within a few days and tanks shortly after and work will be rushed. J. Frank Wilson of Owensboro will be the local manager.

Kentucky Natural Gas Co., a subsidiary of the Missouri-Kansas Pipe Line Co. has contracted to run a gas line from the Legrande Field to the city gates of Nashville, Tenn., supplying the Dupont plants at Old Hickory.

The Consolidated Utilities of Kentucky is already in the local fields with their lines and taking care of extensive business.

Oil Operators, Inc., have contracted for a 4-inch line to run from the producing oil field to Rowlets and the work is being rushed, the contract being let to Frank Greer. The output of this line has been contracted to the Aetna Oil Refining Co., Louisville.

NEW LINE TO WAGONER

The Cherokee Public Service Co. is constructing a 4-inch pipe line from the Atkinson-North lease, 4 miles west of the Combite school house, to connect with its central pipe line system, which carries gas to Wagoner, Okla., where it is distributed by the Wagoner Gas Co., a subsidiary of the pipe line company. The distributing company now secures its gas from three sources, the Oklahoma Natural Gas Corp., the Southwestern Natural Gas Co. and the Cherokee Public Service Co.'s line to Wagoner and Muskogee County fields.

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"YOU CAN BE SURE OF NEILAN PRODUCTS"

Sixteen Completions in Central Ohio

Spring Drilling Campaign in Prospect East of Toledo. Hardin County Field Play Continues. Two Illinois Completions

By George A. Whitney
Staff Correspondent, Central West Fields

FINDLAY, Ohio, Feb. 2.—The old Lima Field of northwestern Ohio is by no means thoroughly drilled over, in fact hardly one of the many counties to comprise the field has been tested to its limits. Henry County, which has only had a few tests, is in line for test work as soon as weather improves, being just west of the once famous producing Wood County, which was one of the banner counties of the Trenton Rock area. Hancock, Auglaize, Mercer, Van Wert, Shelby, Sandusky and numerous other counties are still on the map for test work.

Indiana is about the same as the Lima Field, only partially drilled over and that only in a few counties. Ottawa and Lucas Counties, almost to the extreme eastern part of the Lima Field, are still in the running for development work.

There is talk about the prospects of some drilling during the spring season about 15 miles east of Toledo, in both Ottawa and Lucas Counties, in the vicinity of Bono, along the south shore of Lake Erie and around Martin, Clay Center and other parts of Ottawa County and in the Monclova area of Lucas County, around Monclova and Springfield Townships. The latter township has a test just completed by R. B. Weed and others on the Emmett Holloway farm, NW, Section 29, that developed into a dry hole, and another test is being started also in Springfield Township, Lucas County, by M. Gray on the Kile Brothers farm of 100 acres, SW, Section 28. In Monclova Township, same county, John Doblinger is starting a test on the Glen Lose farm, Section 8. In Oregon Township, Lucas County, east of Toledo, the Ohio Oil Co. abandoned Nos. 1 and 2 R. R. Scott farm, Section 16, and No. 1 O. B. Huss farm, Section 5. In Ottawa County, Allen Township, the Ohio Oil Co. abandoned No. 1 O. Chandler farm, Section 31, also Nos. 2 and 4 P. Hartman farm, Section 3.

In the Tiffin Field, Liberty Township, Seneca County, the Industrial Gas Co. drilled in two light gas wells in No. 2 Edward Stahl, Section 33, and No. 2 John Sorg farm, Section 28, while the Sandusky Gas Co. is drilling No. 2 Eli Rosenberger farm, Section 25, same township.

Hardin County is the most active field at this time in the Lima district, where Barnaby and others' No. 8 on the Jacob Kurt farm, Section 6, Pleasants Township, got a small gas well along with 3 bbls. of oil at a depth of 1,397 feet. Bert Sheldon's second well on the Fred W. Kurt farm, same section, is a fair gas well in the Trenton at a total depth of 1,384 feet, and the Martin Oil & Gas Co. has a fair gas well in No. 3 on the N. S. and W. Martin farm, Section 7, same township, from 1,382-87 feet. Abbott Brothers are reported starting No. 1 on the B. H. Oats farm, Section 9, Pleasants Township.

Jones & Coyle are starting a second test on the Mary Chaney farm, Section 8, Tymochtee Township, Wyandot County.

Robert H. Sitt and others have abandoned Nos. 15, 20, 21 and 22 on the Stitt, Saeger & Pool farm, Section 4. Scott Township, Sandusky County, and the Ohio Oil Co. abandoned Nos. 2, 3, 4, 5, 6, 7, 8 and 9 S. L. Tyson farm, same section, and near Rolleville, a one-time heavy producing field in the early nineties.

Near North Baltimore, in Henry Township, Wood County, the Ohio Oil Co. abandoned Nos. 1, 2, 3, 4, 5 and 6 Risser & Taylor farm, Section 33.

CENTRAL OHIO

Sixteen completions were made in the Central Ohio Field, of which four were oil producers with an initial production of 55 bbls.; three dry hole and eight gas wells, while in new work starting there were five locations staked and 12 wells started spudding, a total of 17.

In Ashland County, Clifford & Kolb's No. 8 Ira Myers farm, Section 29, Perry Township, produced 6 bbls. initially from 679 to 709 feet. Robinson and others are drilling No. 4 Barbara Easely farm, Section 9, Lake Township, and No. 7 Henry C. Young farm, Section 22. Gold Crown Oil & Gas Co. is drilling No. 6 Harry Horn farm, Section 21, same township.

In Medina County, Chatham Township, Edson and others' No. 11 Marcus A. Frank farm, Lot 20, produced 25 bbls. first 24 hours from 422 to 456 feet. Oko Oil & Gas Co.'s No. 47 Henry Essig farm, Lot 2, same township, found broken sand from 361 to 378 feet, and was dry. Edson and others are drilling No. 13 George W. Packard, Lot 4 and are also drilling No. 12 Marcus A. Frank farm, Lot 20. Ohio Fuel Gas Co. has a gas well in No. 1-5,334 A. W. Bowman farm, Lots 41-42, Hinckley Township. In Homer Township, Barnhart and others are drilling No. 1 P. A. Grissinger farm, Lot 16, and the Kemrow Co. is drilling No. 3 Frank Rhader, Lot 4.

In Lorain County, Wiser Oil Co.'s No. 1 Celia E. Robson farm, Lot 17, Carlisle Township, failed to find any sand at 2,349 feet and is dry. L. T. McGrath's No. 1 Otto Jarmush farm, Lot 31, Ridgeville Township, is a light gas well in the Newburg sand. In Columbia Township, McMillen and others made a location for No. 3 on the G. and N. Allen farm, Lot 89, and Dillon & Frederick, made a location for No. 2 E. N. Gilpin farm, Lot 72, same township.

Wayne County

In Wayne County, the Kemrow Co. has a light oil showing in the lower Clinton formation from 3,162-77 feet and will be given a shot in hopes of increasing the production.

In Summit County, Greene Township, Stoltz Oil & Gas Co. has an excellent gas well in a second test on the Katherine Selzer farm, Section 7, at a depth from 4,002-38 feet. East Ohio Gas Co. also has a good gas well in No. 1 Henry Hausman farm, Section 17, same township, from 4,067-4,102 feet.

In Licking County, Eden Township, I. C. Robinson and others have a dry hole on the John E. Ruby farm, Section 19.

In Muskingum County, McLaughlin Brothers report a 3-bbl. producer in No. 7 Charles E. Vensel farm, Section 15, Monroe Township, in the Berea sand from 1,013-34-49 feet. Wittmer Oil & Gas Co. has a light gas well in No. 1 on the Sidney A. Taylor farm, Section 20, Perry Township, same county, at a total depth of 4,422 feet. Same company's No. 1 G. F. Heagen, Section 15, is now reported as a 6-bbl. pumper from the Clinton formation at 4,046 feet. In Wayne Township, the Atha Co.'s No. 1 E. P. Arnold, Section 1, is reported as doing 21 bbls. initial from a depth of 4,200 feet.

In Athens County, Athens Township, Clark Oil & Gas Co.'s No. 1 J. S. Radford, Section 25, is an average gas well in the Berea sand from 1,240-47 feet. Shady River Oil & Gas Co. is drilling No. 13 F. W. Chapman, Section 26, Carthage Township. C. W. Nuzun and others are drilling No. 2 Augustus Brechtel farm, fractional Section 3, Cannon Township.

In Tuscarawas County, Oxford Township, Ohio Fuel Gas Co. has a gas well in No. 1-5,380 Henry C. Berkshire farm, Section 20, at a total depth of 3,539 feet. Oxford Oil & Gas Co. is drilling No 4 Phillip Lamneck farm, Section 21, same township.

In Starke County, Lawrence Township, Wittmer Oil & Gas Co. has a light gas well in No. 1 E. R. Donneworth, Section 10, in the Red Sand from 3,870-3,909 feet. East Ohio Gas Co. has a fair gas well in No. 2 J. M. Blake, Section 36, Jackson Township, from 4,428-45 feet. Medford Oil & Gas Co. is starting No. 1 John C. Easterday farm, Section 35, same township.

INDIANA

The finding of a gas well in Harrison Township, Daviess County, in southwestern Indiana, by James E. Young on the William Robinson farm, NE NW NW, Section 31, was a surprise to the owners as they were looking for oil. The gas was struck at a total depth of 900 feet and reported with a volume of 400,000 feet. Near Montgomery, same county, Williams and others report a showing of oil at 699 feet in a wildcat which was shut down and therefore it is impossible to estimate the value of the well until completed.

Texana Oil Co. brought in a dry hole on the S. McCullough farm, Section 10, Barton Township, Gibson County, at a total depth of 1,317 feet. Same company's test on the L. W. Gudgell farm, Section 25, Columbia Township, same county, is reported at a depth of 3,352 feet and is the deepest hole yet drilled in that part of the State.

H. H. Risher drilled a test 600 feet from the north line and 200 feet from the east line of the R. G. Salyard farm, SE NW, Section 30, Washington Township, Pike County, which came in a duster at a depth of 1,183 feet. James E. Young is drilling No. 2 Matilda Bilderback, NW NE SE, Section 23, same township.

Saddle Creek Oil Co. is drilling on the Durbin Hessler farm, Section 4, Polk Township, Monroe County, and is shut down on top of the Trenton lime formation.

Unknown parties are working in Section 19, Hendricks Township, Shelby County, farm name unknown.

ILLINOIS

Very little is doing in any section of Illinois, there being but two comple-

(Continued on Page 83)

LEGRANDE POOL OPERATORS PLEASED WITH PROMISE OF NEW PIPE LINE

By George A. Whitney
Staff Correspondent Kentucky Fields

HORSE CAVE, Ky., Feb. 2.—The operators in the Legrande Field of parts of Hart, Barren and Metcalf Counties are pleased with the report of the construction of a new pipe line to care for the crude that is held in farm tanks over the field, there being many thousands of barrels in storage awaiting the moving of the crude so that the oil can be produced from the wells that have been standing idle. Berry Stoll, of the Stoll Refining Co., Louisville, purchased 8 acres from W. Blakely, near Hardyville, as the site for a pumping station, and work was started on the company's 4-inch pipe line from the Legrande oil field in Hart County to Louisville. Mr. Stoll ordered two 10,000-bbl. storage tanks and let a contract for pump houses. It was estimated that construction would be completed in three weeks, the right of way for the pipe line having already been obtained. The pipe line will open the oil field on a large scale. Well owners, who have had wells capped, are opening them and starting flows into storage tanks, preparatory to sending the oil through the line now under construction into Louisville.

The completion of the Stoll pipe line will bring about a heavy drilling campaign as soon as the weather conditions are better.

Very little work is under way in any area of Kentucky at this time and will not start in earnest until the spring thawout is over, as it is almost impossible to move material and drilling machines up and down the Kentucky hills, for usually the mud is deep. March is about the time that work will show a revival, as that has been the case for a number of years.

Tri-County Field

The Tri-County Field, comprising Ohio, Hancock and Daviess Counties, is very quiet only a few wells being brought in as the shutdown still prevails. The Owensboro Messenger has this to say about that end of the field: "Reorganization of the Owensboro producers into a group independent of the Kentucky Oil and Gas Association was effected at a meeting of the producers in the Owensboro Field, made up of Daviess, Ohio, McLean and Hancock Counties and some Muhlenberg and Henderson County producers, held at the Owensboro Hotel. Courtney Combs, of the Owensboro Oil Exchange, was made chairman of the meeting, at which conditions existing in the Owensboro Field were discussed and means formulated for relieving the operators in this section. It was determined to organize a strictly producers' association, and Julius C. Miller was elected president; Harry C. Smith, vice president, and Courtney Combs, secretary and treasurer.

"The secretary was directed to formulate a set of by-laws to be presented at a subsequent meeting, to be called by the president when the by-laws are completed, and when every producer in this field will be urged to become a member. Directors will be appointed at that meeting until such time as another election is to be held, when they will be elected by a member vote.

"The primary purpose of the organization, it was stated, will be to procure the building of a refinery, providing transportation facilities in the shape of a pipe line, and build up a distribution system of the manufactured products in the area in which the Kentucky crude producers operate. Only producers will be eligible to membership in the organization formed, it was provided, and these must be producers in this area."

Completed Wells

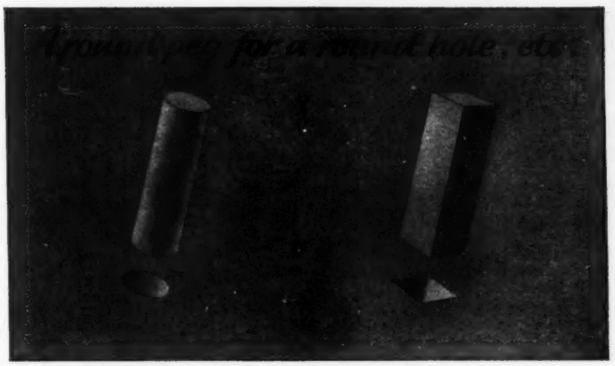
In the Friendship area of Ohio County, the Louisville Gas & Electric Co. drilled in No. 3 on the H. Reynolds farm, which is a fair gas producer. S. H. Russell struck a duster in a second test on the Lee Farmer farm at 825 feet, and starting No. 3, same farm.

In the Pellville Field of Hancock County, Whitmer and Snyder found a dry hole in No. 3 on the Alvie Colley farm, and Hupp & Duff are drilling No. 3 on the J. T. Crowe west 60 acres.

Niagara Drilling Co. found a dry hole on the Melton heirs' farm, 2½ miles southwest of Sebree, in Webster County.

WITH ITS TEETH

the GUIBERSON SPIRAL BOTTOM WATER PLUG



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GUIBERSON

BETTER BE SAFE THAN SORRY

Unusual Gas Well in Pennsylvania Field

Washington County Has 14,000,000-Foot Producer Near Finleyville. Calhoun County, West Virginia, Has Most Activity

By Staff Correspondent

PITTSBURGH, Pa., Feb. 2.—The largest gas well to be completed in Washington County, southwest Pennsylvania, in many years or in the lower eastern fields for several years was drilled in during the past week. In Union Township, near the town of Gastonville, about a mile from Finleyville, the Plymouth Oil & Gas Co. completed a test on the William McClure farm in the Fifth sand at a depth of 2,450 feet. It is estimated to be making 14,000,000 to 16,000,000 feet a day with a rock pressure reported as 950 pounds. The well is in fairly well developed territory, a nearby well having found no gas in the Fifth sand but good production in the Speechley sand about 1,000 feet deeper. The closest Fifth sand well lies about 1,800 feet away and is not a large well. As the well does not extend into any new territory, it is feared that it probably is a pocked but with a considerable reserve.

There were but few wells completed in the lower eastern fields but several were more than fair completions. A total of 21 wells was divided, 13 gassers, 3 dry holes and 5 oil producers with an initial production of 112 bbls.

SOUTHEAST OHIO

Among the three wells reported from southeast Ohio one was a fair oil well. In the SE Section 14, Perry Township, Coshocton County, the Preston Oil Co. completed a test on the Alonzo Vanwinkle farm to a depth of 3,188 feet and in the Clinton sand. The production the first 24 hours after shot was gauged as 100 bbls. The completions in other sections were very light.

In Ashland County, the Gold Crown Oil & Gas Co. drilled No. 6 on the Harry Horn lease of 53 acres which after shot is showing for a 5-bbl. pumper from the Berea sand at 635 feet. The well is in Section 21 of Lake Township. In the shallow sands in Washington County, M. E. Leasure and others completed a test on the H. B. Murdock farm in Section 8, Palmer Township. It was drilled in the Peeker sand at 472 feet and is rated as a 1-bbl. pumper.

Drilling in Ohio

In Knox County, the Ohio Fuel Supply Co. has reached 2,200 feet on the Jess White farm in Section 23, Union Township, and in the same section the Upham Gas Co. is down to 2,000 feet on the Lewis Lower farm. In Tuscarawas County, Gordon Oil Co. and others' No. 3 has a rig up on the Ralph Huffman farm, Lot 35, Washington Township, and in Section 19, the Capital Drilling Co., Inc. is down to 3,480 feet on the Stewart and Nancy Asker farm. In Guernsey County the Kemrow Co. is rigging up for a third well on the J. W. Fowler farm in Section 10, Wheeling Township, and in Section 19, James Sager and others have reached 1,000 feet in a second test on the James Sager farm.

In the gas territory in Belmont County, W. C. McBride, Inc. is drilling No. 3 on the Grant Hadsell farm, Section 1, Somerset Township. In Washington Township, Monroe County, the Bentz Oil Co. is drilling on the Lewis Cline farm, Section 17, and in Section 11, Bethel Township, M. Stoffel and others have a rig standing for No. 3 on the M. Stoffel farm.

In Carroll County, there are four wells drilling. Eaton and others have No. 8 on the Nelson E. Slates, Louden Township, and No. 4 on the Jennie Chase farm, same township; George W. Elliott and others have No. 3 on the H. G. Buchanan, Louden Township, and in Center Township, the Lisbon Oil & Gas Co. has No. 4 on the James M. Hanna farm. All four wells are drilling very closely at about 1,200 feet.

WEST VIRGINIA

There was but one oil completion in West Virginia. On the branch of Big Run of Mill Creek, the Lone Pine Oil Co. completed a test on the J. T. Phillips farm in Washington district, Jackson County. It was drilled in the Cow Run sand at 1,150 feet and is showing for a 5-bbl. pumper.

Gas Wells

The best gas well reported in West Virginia was in Cabin Creek district, Kanawha County, where the Winifred Co. continued its operation on its own property with a completion of No. 10 at 1,392 feet and in the Maxon sand. It is showing for 2,500,000 feet. In the same district, the Carrolton Coal Co. completed No. 4 on its own tract and has a gas well estimated at 250,000 feet. The United Fuel Gas Co. completed No. 2,505 on the J. M. Johnson farm, same district, and it is a dry hole.

In Boone County, the Southern Gas Co. completed No. 3 on the Miller heirs farm, Washington district, and it was a dry hole, and No. 4 on the same farm resulted in a fair gas well. In Sherman district, Godfrey L. Cabot completed his No. 45 on the Federal Coal Co. lease and it will make a fair gas well.

In Henry district, Clay County, the Pure Oil Co. drilled a second test on the B. F. Pierson farm in the Injun sand at 2,116 feet and it is showing for a fair gas well. In Marshall County, the Carnegie Natural Gas Co. drilled its test on the I. N. Hart farm deeper and has a gas well at a depth of 3,097 feet. This lease is in Liberty district. On Arnolds Creek, Central district, Doddridge County, Wilson and Broadwater completed a test on the James Cox farm in the Big Injun sand at a depth of 1,810 feet and have a gasser.

In Mingo County, there were three completions. F. H. Yates completed a test on the Richard Vance and Georgia Workman farm in Harvey district in the Maxon sand at 1,250 feet and it is a 250,000-foot gasser. In the same district, the Red Jacket Oil & Gas Co. completed No. 15 on Red Jacket Consolidated Coal & Coke Co. tract at 1,325 feet and it will make a fair gas well. The United Fuel Gas Co. drilled No. 4,237 on the Central Trust Co. lease in Harvey district to a depth of 3,229 feet and it is a light gas well.

In Ritchie County, the Hope Natural Gas Co. completed a test on the Shirley Goff farm in Murphy district. It was drilled in the Injun sand at a depth of 2,005 feet and will make a gas well. In Wetzel County, the Manufacturers Light & Heat Co. completed No. 3,458 on the J. D. Horner farm in Church district at 3,245 feet and it is a gas well.

Drilling in West Virginia

In Roane County there are several tests drilling. In Geary district the Central State Gas Co. is down to 800 feet on the Alexander White farm. In Smithfield district, Wiseman and Jackson have reached 1,600 feet on the McQuain heirs farm. The United Fuel Gas Co. has a fishing job in its deep test on the Presley Vineyard farm at 5,005 feet. This well is an old test drilled deeper. In the same district the same operator has spudded in and reached 225 feet in a well on the S. E. Boggers farm, and in Curtis district is down to 5,335 feet in a deep test on the J. M. Hinzman farm. In the same district the Parsons Oil & Gas Co. has started to drill on the E. E. Rader farm and is at 250 feet, and the Reedy Oil & Gas Co. has a location on the A. J. Paugh farm. In Spencer district, Paul Weekley and others have completed a rig on the Gay M. Sargent farm, and the Ohio Valley Gas Corp. has moved in part of the materials for No. 15 on the R. M. Jennings farm. In Reedy district the Heck Oil Co. has part of the material on the ground for No. 5 on the H. W. Allen farm and has made a location for No. 6 on the J. W. Conley.

In Calhoun County drilling continues active, and there are more tests drilling than in any other county. In Washington district, Wiseman and Jackson have rigged up on the Elizabeth J. Boothe farm, and George W. Hamilton is down to 600 feet on the Ella Eisman farm but had to shut down for water. Doctor Hively and others are down to 800 feet on the William M. Hall farm, and Godfrey L. Cabot reached 1,475 feet and had to shut down on account of a bad hole on the G. B. May farm. In Sherman district the following work is noted. W. H. Bickel is drilling at 1,891 feet on the Louis Bennett farm, and L. P. Bickel has shut down for water on the Jack Bland farm at 380 feet. The Hope Natural Gas Co. has made a location on the Ella Shaffer farm. C. B. Lewis and others are down to 1,786 feet on the Calhoun County poor farm. The Mid Penn Oil Co. has a rig standing on the Chess Poling farm. Godfrey L. Cabot has made the following new locations: No. 10 on the W. T. Rafferty farm, No. 5 on the Laura V. Ash farm, No. 2 on the G. J. Bennett, and has reached 2,175 feet in a second test on the Lewis Little farm. In Lee district the United Fuel Gas Co. is drilling at 1,475 feet No. 4,280 on the Carr Shaffer farm, and the Hope Natural Gas Co. is down to 1,640 feet in No. 7,514 on the C. C. Starcher farm. F. F. McIntosh has reached 1,325 feet in No. 3 on the Allen Hardman farm, and has the material on the ground for No. 3 on the Fox and Morgan lease. In Center district the same operator is drilling on the Clinton Shock farm and is at 1,840 feet. A. H. Jackson has started drilling his test on the F. S. Means farm and is at 550 feet, and B. J. Crawley has rigged up on the Florence Pell farm. The United Fuel Gas Co. has a location made for No. 4,279 on the Tell McDonald farm, and Godfrey L. Cabot one on the Scott Umstead farm. W. H. Bickel has two wells drilling, a test on the John D. Collins at 1,935 feet, and a second well, same farm, at 1,300 feet, and has made a location for a fourth. Creed Barker and others have the material on the lot for a test on the St. Paul Church lot.

SOUTHWEST PENNSYLVANIA

There were two additional wells completed in southwest Pennsylvania. In North Fayette Township, Allegheny County, H. Schaffer & Co. completed a test on the H. H. Schaffer farm in the Fifth sand and at a depth of 2,170 feet. It is showing for a half-barrel pumper. In Hopewell Township, Washington County, the Hopewell Oil & Gas Co. drilled a test on the W. V. Caldwell farm to a depth of 1,400 feet and found it dry in all sands.

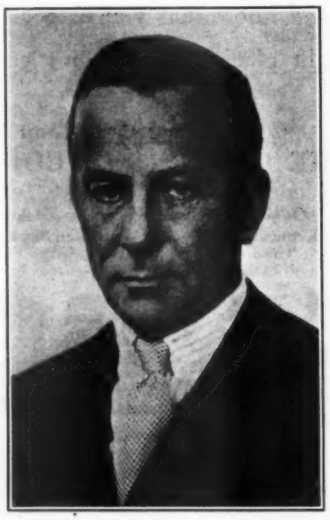
In Hanover Township, Duncan and Coulter are down to 1,600 feet on the A. Hood farm in Washington County. W. B. Redd & Co. are rigging up on the Thadius Crile farm in West Bethel Township. In Chartiers Township the Cannonsburg Steel & Iron Co. is at 1,600 feet in a test on its own property. In Amwell Township the Carnegie Natural Gas Co. is drilling at 1,750 feet on the Frank Moniger farm. In Independence Township, Beaver County, the Hobbs Oil Co. is down to 1,450 feet on the Joseph M. McCoy farm.

In Greene County the Union Gasoline & Oil Co. has spudded in and started drilling on the J. P. Minor farm in Dunkard Township, is drilling at 1,300 feet on the Nicholas Livengood farm, and 2,850 feet on the Mary Stewart farm. In the same district the Convex Glass Co. is down to 1,875 feet on the James Titus farm. In Whitely Township the Manufacturers Light & Heat Co. is at 2,375 feet on the John Hudson farm.

SEA COAST DRILLING

Jurisdiction over the entire California sea coast, including the issuance of permits for oil drilling and building of wharfs, would be placed in the hands of the chief of the state division of lands, who would regulate public and private use of the beaches, according to a series of bills introduced in the California Assembly by Assemblyman William Hornblower of San Francisco. Money would be raised, the bills specify, by diverting 50 per cent of the State's revenue from oil drilling operations.

TWO ROYAL DUTCH PETROLEUM OFFICIALS



J. B. Aug. Kessler
Managing Director, Royal Dutch Petroleum Co.

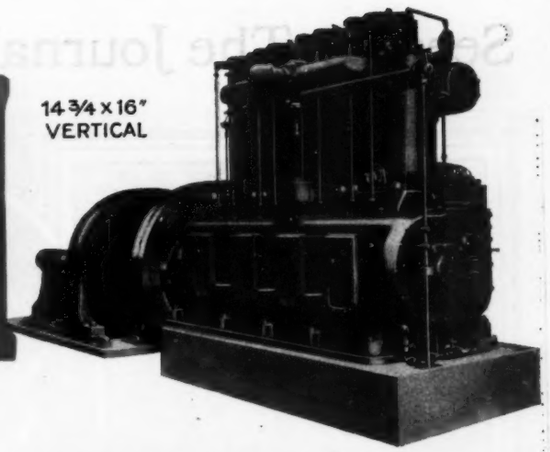
J. E. F. de Kok
Managing Director, Royal Dutch Petroleum Co.

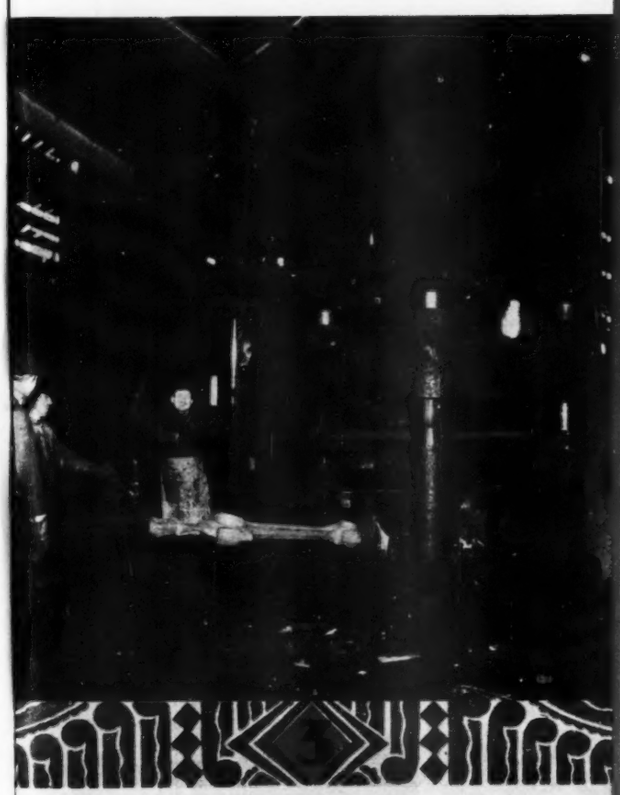
1 Die that forges connecting rods for 14-¾ x 16" Vertical engine.

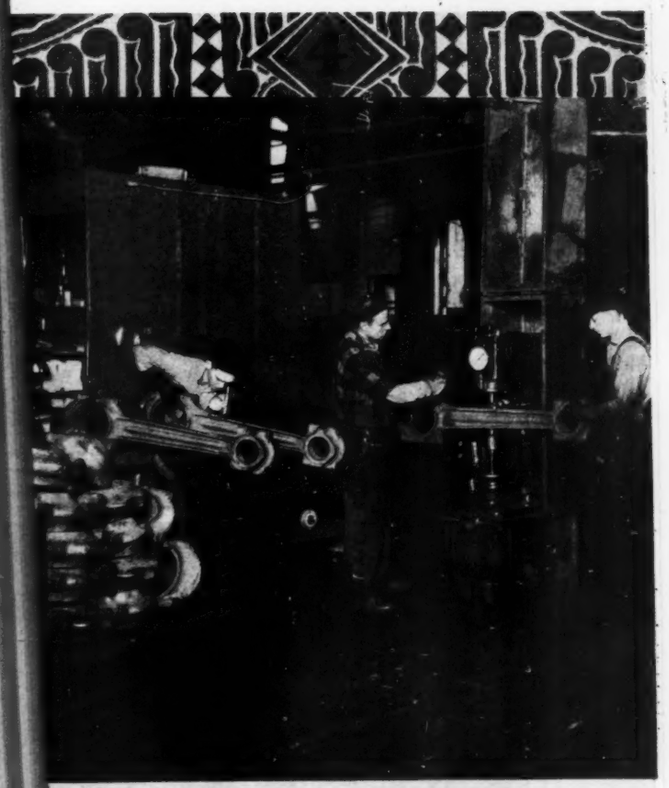
2 Workmen removing die-forged rod from steam hammer. Note one-half die on top, one-half on bottom.

3 Workmen trimming off excess metal on hydraulic trimming press, after rod has been die-forged.

4 Inspectors using Brinell hardness testing machine to determine hardness and to check heat treatment.







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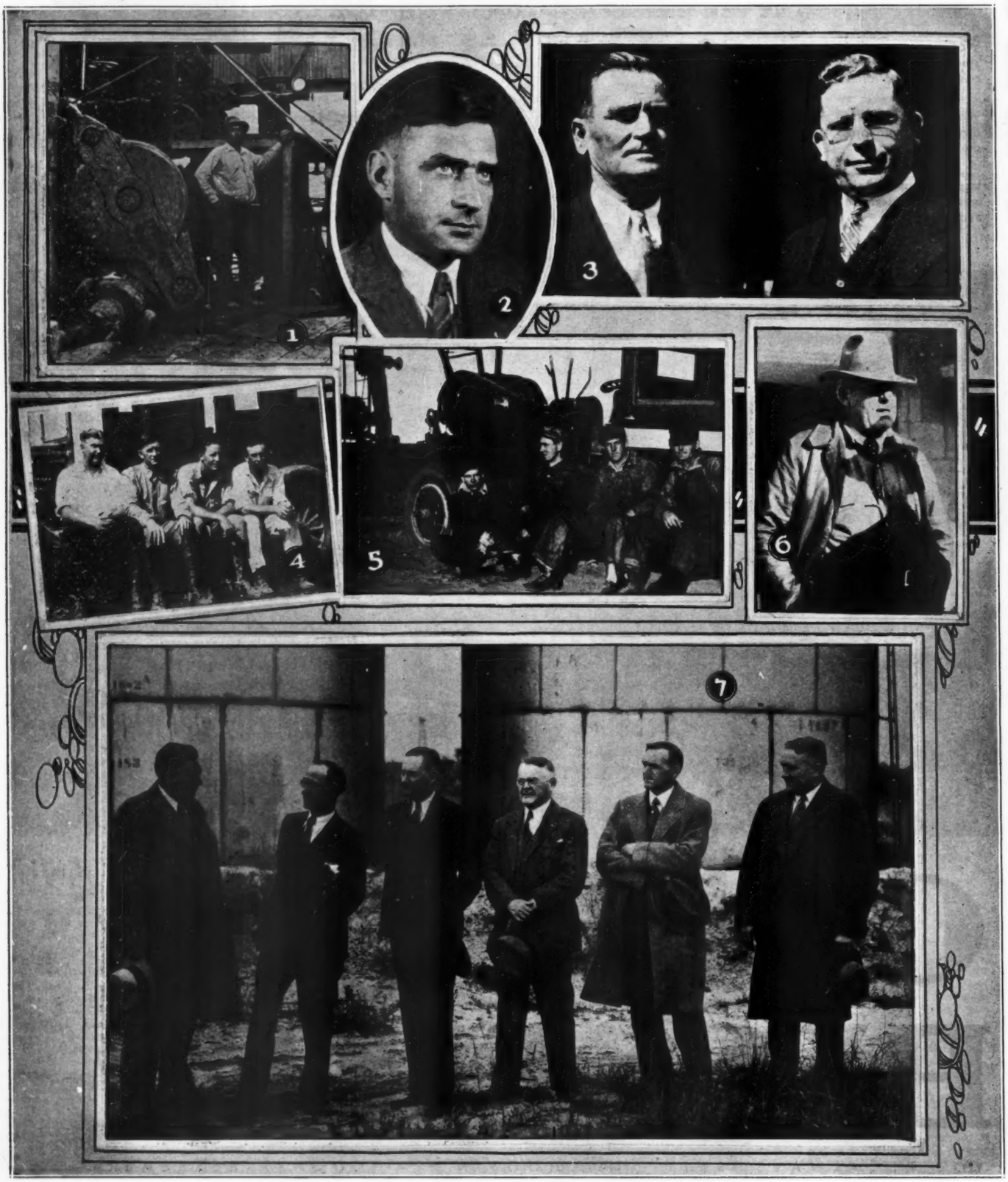
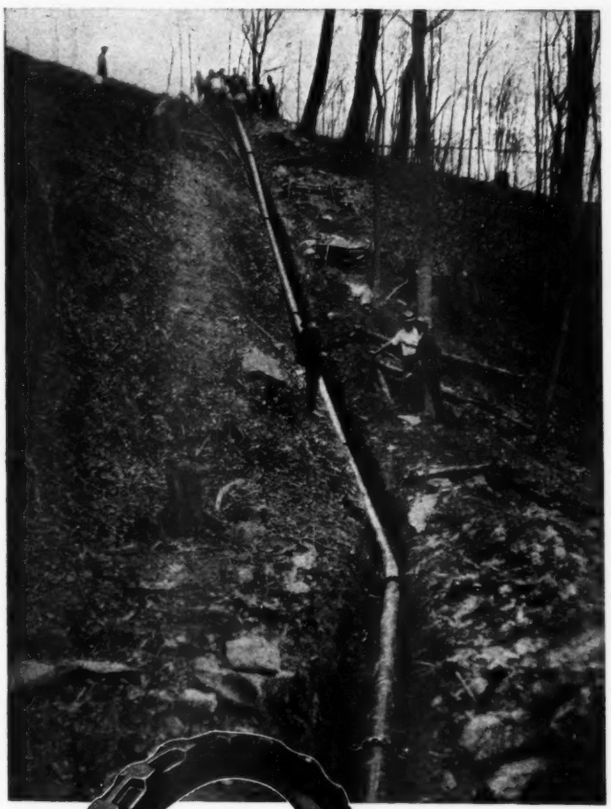
Seen by The Journal's Men In the Different Fields



1—C. L. Giboney, superintendent, Coalinga division, Associated Oil Co., Kettleman Hills, Calif. 2—Glenn Hendrickson, Wico Electric Co., Seminole, Okla. 3—A. F. Day, president, and John E. Morris, secretary-treasurer, A. F. Day Construction Co., Dallas, Tex. 4—N. L. Barr, W. V. Hill, Woody Chambliss and C. W. Hall, leak hunters, Lone Star Gas Co., southern division. 5—I. A. Miller, L. H. Hudkins, W. B. Horne, and E. L. Lockett, crew of Southern States Co. tubing wells in Oklahoma City Field, Oklahoma. 6—P. L. (Pack) Davis, trucking contractor, Tyler, Tex. 7—Officials of the Chippewa Oil & Gas Co. of Michigan, left to right: H. C. Eastman, president, Midland, Mich.; Dr. John H. Ellis, vice president, South Bend, Ind.; J. O. L. Spracklin, secretary-treasurer, Midland, Mich.; Frank Harbin and Gorgan Hanson, Midland, Mich.: and Harold Bailey, Rockford, Ill., directors.

"For every joint on the line"



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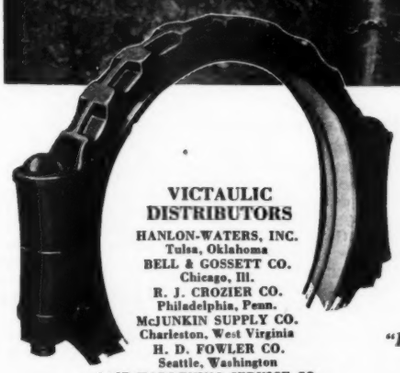

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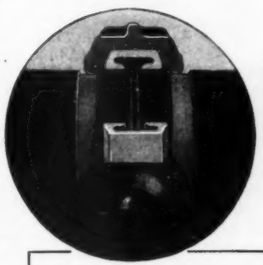
Toronto, Ontario, Canada

"For every joint on the line"



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Natural Gas Industry Developments

FORT WORTH ELECTION FOR MUNICIPAL PLANT

FORT WORTH, Tex., Jan. 31.—Supporters of municipal ownership of the gas plant won the election here by an almost two to one vote.

The voters having spoken, the city manager and council will proceed to carry out instructions. Terms for purchase of the distributing system of the Fort Worth Gas Co. and its operation as a municipal system will be negotiated. It has been estimated by the municipal ownership advocates that the plant may be acquired for $5,000,000, either by purchase or condemnation. Bonds payable from the revenue would be issued to pay for the plant.

By voting a mandate to the city council, virtually directing the purchase of the distributing company, the gas consumers of Fort Worth have opened the way for the termination of a three-year rate war. A minimum rate of 58 cents for the first 1,000 feet was in effect in 1928. Then the Fort Worth Gas Co., subsidiary of the Lone Star Gas Corp., asked the city council for higher domestic rates. The council refused the request. The rate increase demand then was made before the Texas Railroad Commission. The company's application was denied by that body. An appeal from that decision to the Federal District Court also was unsuccessful, so the company took its rate case before the Three-Judge Federal Court. A special master was appointed, and the Three-Judge Court in December, 1929, awarded the Fort Worth company an increase from 58 cents to $1.25 on a minimum bill.

Engineering firms were engaged to make a valuation of the distributing company's property. Negotiations were opened with capitalists for the construction of a pipe line that would assure delivery of a supply of gas independent of the Lone Star Gas Corp. Petitions were circulated calling for the special election and the voters gave an overwhelming majority in the affirmative on this question:

"Are you in favor of the city of Fort Worth, Tex., owning and operating the public service plants and properties now being used for the purpose of distributing natural gas for domestic and industrial consumption?"

The August Belmont Co. of New York, is reported to have tentatively agreed to construct two 20-inch pipe lines to Fort Worth and has formed the Texas Natural Gas Corp. for that purpose. One of the lines will bring gas from the Amarillo Field and the other will tap the Ranger Field in Central West Texas.

With the privilege of buying gas at the city gate at 30 cents per 1,000, city officials are confident they will be enabled to distribute the gas to domestic users at prices lower than the minimum that prevailed prior to 1929.

Another election will be held in April to permit the voters to pass on the actual contract of purchase for the distributing system, and to validate an ordinance authorizing the issuance of revenue bonds to pay for the plant. It is proposed to pay for the plant in 10 years.

ALBERTA BOARD APPOINTED

CHATHAM, Ontario, Jan. 31.—R. G. Reid, minister of lands and mines for the province of Alberta, has announced the appointment of a board of natural resources, advisory to the minister. This board will deal with policies relative to oil and gas development in the province. The members are R. J. Dinning, chairman, Dr. R. C. Wallace and Dr. F. A. Wyatt. John Harvey has been appointed acting deputy minister of lands and mines.

COMPETING FRANCHISES FIGURE IN MONTANA

CASPER, Wyo., Jan. 31.—Natural gas interests in Montana are very active at present. Franchises are being sought in every city, town and hamlet in the central part of the State, and even at points where there is already gas service. E. B. Coolidge has filed an application for a franchise to serve natural gas to the city of Great Falls, the largest city in the State, already being served by the Great Falls Gas Co. Mr. Coolidge states he can bring gas to Great Falls and sell it to the people of that city at a great saving. He states he is not affiliated with any oil or gas company, but is in position to deliver the gas.

In Billings, where the Ohio Oil Co. serves the city with gas, C. W. Fowler, former secretary of the Commercial Club, has filed application for a franchise and proposes to form a mutual gas company to bring the gas to Billings.

The Ohio Oil Co. has obtained a franchise to furnish gas to Livingston and the Montana Power Co. already has a similar franchise there. The present law regarding the promiscuous granting of franchises of this kind in any city or town in Montana is expected to become a source of much trouble in future years. Already considerable rate cutting and law suits have developed at Shelby due to two companies trying to serve the community, and similar conditions are predicted in other places where more than one firm furnishes gas.

NEW WELLS FOR APPALACHIAN

Eleven new natural gas wells were added to the holdings of companies in Appalachian Gas Corp. group, bringing the total up to 628, according to announcement by Ross Holmes, chief engineer. Figures do not include Memphis Natural Gas Co. which secures gas under purchase contract in the Louisiana fields.

"The corporation's owned or controlled properties in the Appalachian Field division as of November 30, 1930, amounted to 244,221 acres, upwards of 400 miles of pipe lines, 621 wells and gas reserves estimated to be 150,793,620,000 feet," said Mr. Holmes. "An additional pipe line mileage of 423 miles is owned by the Memphis and Texas divisions, while the open flow capacity of wells owned by Texas Gas Utilities Co., subsidiary having certain gas rights in over 87,000 acres in south-central Texas, is estimated at 55,000,000 feet daily."

ELDORADO DECISION

TOPEKA, Kans., Jan. 31.—The Kansas Public Service Commission is standing on its Eldorado decision, rendered at Wichita, dismissing application of a Doherty company for higher rates. The Western Distributing Co., owner and operator of the Eldorado gas distributing system, filed an application for a rehearing in the case, contending that the commission acted without authority in dismissing it, and also on the contention that the gas rate previously had been approved by the Kansas Supreme Court.

Considering the application, the commission denied the rehearing. An appeal to the Butler County District Court will be the company's next move, members of the commission believe.

ALBERTA GAS EXPORTS

CHATHAM, Ontario, Jan. 31.—An official announcement by the Range Oil & Gas Co. of Calgary states that the company's natural gas exports from the Rogers-Imperial structure in southern Alberta to Montana have approximated 1,000,000 feet a day since December 13.

COMMISSION ASSUMES JURISDICTION ON RATES

SHREVEPORT, La., Jan. 31.—In a case brought before the Louisiana Public Service Commission by the Louisiana Public Service, Inc., against the Southern Gas Line Co., Chairman Francis Williams, of the commission, ruled that the wholesale distribution of natural gas is within the jurisdiction of the commission as well as retail distribution. The ruling followed a hearing January 15, held to enable the gas company to show cause why the commission should not fix rates and charges on wholesale gas concerning which the rates charged the retailing (complaining) company at two small towns on or near the defendant company's pipe line were at issue. The pipe line company contended the commission was without authority to interfere with its contractual relations or to improve into its affairs on the ground that it was engaged solely in wholesaling gas.

MEASUREMENT COURSE TO BE HELD IN APRIL

The eighth annual Southwestern Gas Measurement Short Course is announced by Dean J. H. Felgar of the College of Engineering, University of Oklahoma, Norman, for April 21, 22 and 23, 1931. This short course offers instruction concerning the latest developments affecting this subject. Manufacturers of gas measuring appliances co-operate with the college by installing their latest equipment and sending factory representatives to demonstrate their use. Twenty-two states were represented in the registration last year with two men from foreign countries. Prof. W. H. Carson of the university engineering faculty is director of the course.

TAKES OVER GAS INTERESTS

CHATHAM, Ontario, Jan. 31.—Announcement has been made of the formal completion of a deal arranged some months ago whereby the American Commonwealth Power Corp. of New York takes over from the International Utilities Corp. all its gas and electric properties in Alberta, Saskatchewan and Manitoba. The newly acquired properties become part of the American Commonwealth system from December 30, and will be administered through the Dominion Gas & Electric Co. The natural gas properties concerned include Northwestern Utilities, Ltd., supplying Edmonton, and the Canadian Western Natural Gas, Light, Heat & Power Co., supplying Calgary, Lethbridge and other communities in southern Alberta.

WINNIPEG GAS PROJECT

CHATHAM, Ontario, Jan. 31.—John White of Billings, Mont., is authority for the announcement that the Capital Gas Co., of which he is president, is planning a major pipe line from the Baer Field in Montana to Minot, N. Dak., with an ultimate extension to Winnipeg and other Manitoba cities. The company has several producing wells, one with 28,000,000 feet open flow.

ALLEGHENY GAS SALES

Allegheny Gas Corp. reports sales of natural gas for the 11-month period ended November 30 of 2,395,563,000 feet against 1,772,025,000 feet for the corresponding period of 1929, a gain of over 35 per cent. Gas lands owned or controlled as of November 30 amounted to 48,646 acres, with gas reserves estimated at 32,604,437,000 feet.

LOUISVILLE GAS BUYS CENTRAL CITY COMPANY

CENTRAL CITY, Ky., Feb. 2.—The Louisville Gas & Electric Co. has purchased the Central Gas Co. of this city. Central Gas Co. was owned by the late Shelby Gish, whose estate descended to his widow, Mrs. Roxie Patterson Gish, and brother, E. M. Gish. Besides the franchise for Central City, and the existing lines, the company acquired the land holdings of gas and other mineral deposits under the surface of between 5,000 and 6,000 acres on which Central City is built and the surrounding country.

Development of the property is understood to be on the program of the new owner. But one-half of Central City is now supplied with the natural gas. Representatives of the Louisville Gas & Electric Co. have indicated the system would be extended to every part of the town.

Besides supplying Central City it has been learned the new owner will develop the gas field for supplying other cities on the way to Louisville, toward which it is intended to extend a pipe line for the company's supply there. The Gish estate will continue to obtain royalty on all gas produced from the large acreage which went with the sale to the Louisville company.

Fifty years ago when E. M. Gish, Sr., and his bachelor brother, John, came to Muhlenberg County they bought up the large acreage under which their descendants now own coal, oil and gas rights, as well as any fire clays that might be developed. As Central City was developed and the nearby countryside, the Gish brothers sold off their lands, but retained all of the subsurface rights, which their heirs owned until this late sale.

John Gish, the bachelor brother, died without issue and his brother, E. M. Gish, Sr., inherited his property. Subsequently E. M. Gish, Sr., and his wife died, leaving their property to the late Shelby Gish and his brother, E. M. Gish, Jr., who now lives in Central City and is one of the largest land proprietors. He, with Shelby's widow, will participate in the royalties of gas developed on the 5,000 to 6,000 acres.

EDMONTON RATE APPLICATION

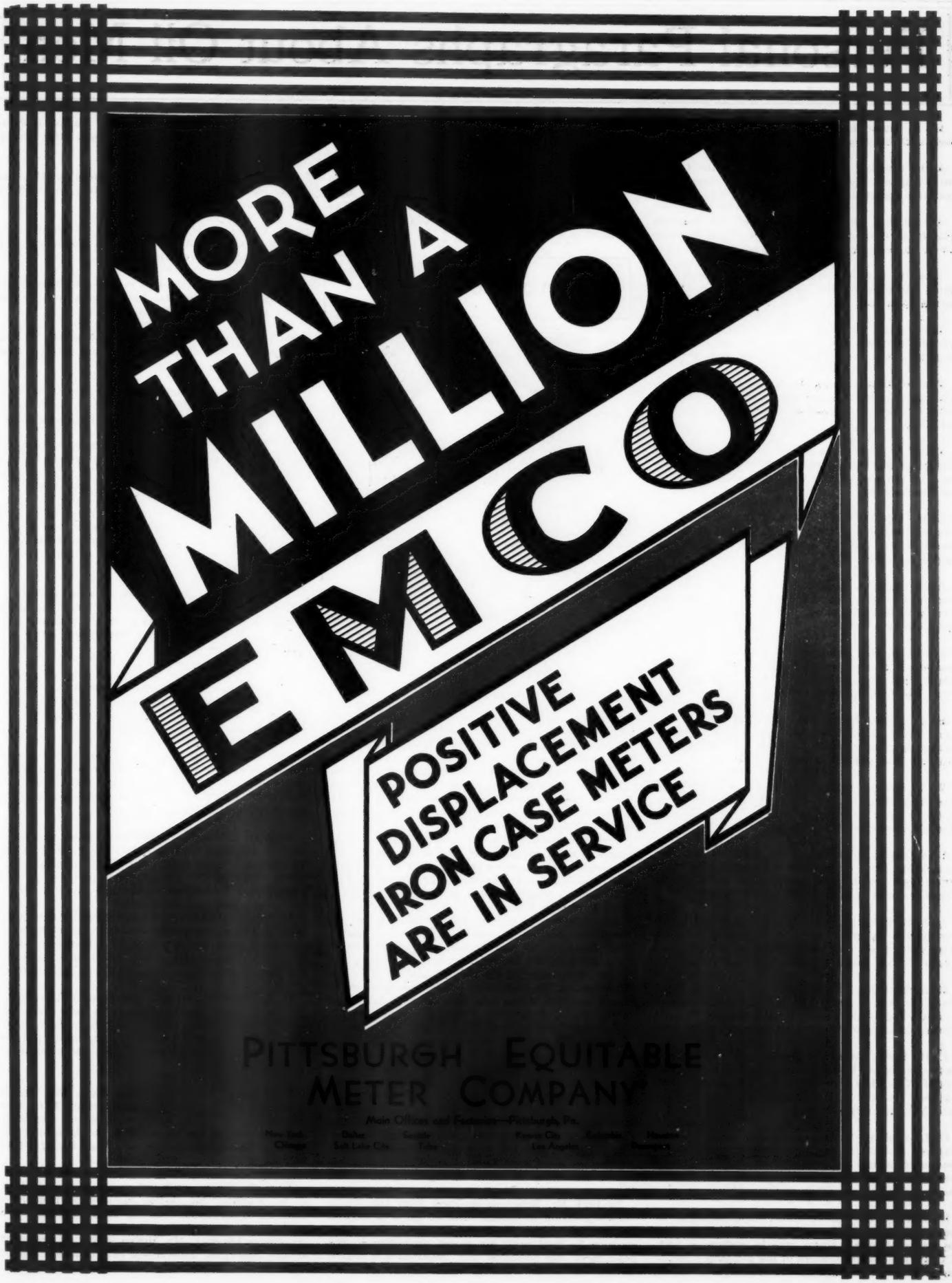
CHATHAM, Ontario, Jan. 31.—Announcement has been made of an application by Northwestern Utilities, Ltd., to the Alberta Public Utilities Commission for approval of lower rates for industrial consumers of natural gas in Edmonton, Alberta. The old rates ranged from 33 to 23 cents and the new schedule varies from 31½ to 18 cents, with 5 per cent prompt payment discount and minimum monthly rate of $1.

PORT CREDIT FRANCHISE

CHATHAM, Ontario, Jan. 31.—The municipal council of Port Credit, Ontario, has refused to pass a by-law approved by the ratepayers at the recent elections and granting the United Suburban Gas Co. of Hamilton a 30-year exclusive franchise to supply gas to the village.

MULHALL GAS ELECTION

The town council of Mulhall, Okla., has called a special election for February 4 to decide whether a 25-year franchise to serve natural gas shall be awarded the Mulhall Gas Co. It is said that work will be started immediately on a new distribution system if a franchise is approved. The supply will come from the 20-inch line of the Cities Service Gas Co., approximately 1 mile east of Mulhall.


MORE THAN A MILLION EMCO
POSITIVE DISPLACEMENT IRON CASE METERS ARE IN SERVICE
PITTSBURGH EQUITABLE METER COMPANY

Personal Paragraphs About Oil Men

H. R. Moore has joined the staff of Dehydro, Inc., with headquarters at Wichita, Kans.

* * *

E. E. Brogdon, purchasing agent for the Cosden Oil Company, Fort Worth, Tex., is convalescing from an operation for appendicitis.

* * *

A. Jacobson and E. DeGolyer, of the Amerada Petroleum Corporation, New York City, were in Tulsa on company business last week.

* * *

John W. Winkler, geologist with the Indian Territory Illuminating Oil Company, has been transferred from San Angelo, Tex., to Perry, Okla.

* * *

H. V. King, for many years identified with the treating of petroleum emulsions, is now located at Shawnee, Okla., as representative for Dehydro, Inc.

* * *

Paul S. Ache, president of Reiter-Foster Oil Corporation, has left for a business trip to New York City. He has been spending several weeks in Denver, Colo.

* * *

Frank L. Cochrane, assistant general manager of the Rocky Mountain division of Standard Oil Company of Indiana, was in Casper, Wyo., on business for his company.

* * *

J. W. Van Dyke, chairman of the board of the Atlantic Refining Company, and W. O'Connor, vice president, are in Cuba inspecting work of the company's engineers.

* * *

Jerry Chestnut, land man for the Republic Production Company, San Angelo, Tex., is spending some time in East Central Texas watching the fast "play" in that area.

* * *

J. B. Umpleby, geologist and petroleum engineer, announces the removal of his offices from the Braniff Building, Oklahoma City, to City National Bank Building, Norman, Okla.

* * *

H. F. (Mike) Ryan, formerly with W-K-M Company, of Houston, Tex., has joined the Resistcor Engineering Corporation of Tulsa. Mr. Ryan took over his new position February 1.

* * *

W. H. Strang, deputy supervisor of the mineral leasing division, United States Geological Survey, Casper, Wyo., has sufficiently recovered from a month's illness to return to his offices.

* * *

E. F. Simms, independent oil operator, has been in Houston, Tex., on business during the past week. Mr. Simms spends most of his time in Kentucky where he owns a large stable of horses.

* * *

Jack C. Ballagh, secretary of Patterson-Ballagh Corporation, is on a business trip to New York City, visiting the Mid-Continent en route, and will return to Los Angeles, Calif., about February 10.

* * *

Miss Hedwig T. Kniker, who for the past three years has been a member of the Phillips Petroleum Company's geological staff at San Angelo, Tex., is opening a paleontological laboratory in that city.

* * *

J. R. Reeve, deputy supervisor of the mineral leasing division, United States Geological Survey, Casper, Wyo., has returned to his offices after having been confined in Fitzsimmons Hospital in Denver, Colo., for some time.

* * *

C. L. Hudson, former purchasing agent for the Midwest Refining Company, with Casper, Wyo., headquarters, has been made district salesman for the Standard Oil Company of Indiana, with headquarters in Durango, Colo.

* * *

L. J. Daly, of Denver, Colo., superintendent of operations for the Texas Production Company in the Rocky Mountain states, was in conference with K. C. Pardee, superintendent of the company's northern division, at Billings, Mont., recently.

Charles L. Reed, chief of scouts in Wyoming for the Gypsy Oil Company, has returned to his Casper, Wyo., offices from a trip to Colorado.

* * *

J. A. Lee, of the Ohio Oil Company; W. J. Rapson, of the Carter Oil Company; and C. L. Reed, of the Gypsy Oil Company, were among the Wyoming men who attended the meeting of the Scouts Council in Denver, Colo.

Men of the Industry

Wallace A. Belstrom

Wallace A. Belstrom, vice president of Mills Bennett Production Company, has had no small part in the development of Barbers Hill, Gulf Coast salt dome field. The faith of Mr. Belstrom and others of his company in that field, which led to a continuation of prospecting in the face of indifferent success, was rewarded by the opening late in 1926 of what since has proved one of the most prolific deep sand fields on the coast.

Mr. Belstrom's connection with Mills Bennett makes him an executive of one of the leading independent oil companies on the Gulf Coast which now is extending its development beyond Barbers Hill and to Allen Dome, acquired this year from Shell Petroleum Corporation.

Mr. Belstrom is a lawyer by schooling but followed the lure of oil instead of his chosen profession. However, his law training has stood him in good stead in the land department work in which he has been engaged the greater part of the time. After leaving the University of Minnesota, where he was a member of the law class of 1918, he served in the Ninetieth Division overseas, and it was following his return from France that he came to Houston, Tex., to get his start in the oil business.

Going to Goose Creek in 1919 at the height of activity there, Mr. Belstrom started as a roughneck, working for J. S. Abercrombie, one of the leading drilling contractors and operators on the coast. After a year and a half there he became associated with the Crown Oil Company as head of its land department, and with this company, and its successor, the White Oil Corporation, recently reorganized as the Crown Central Oil Corporation, his duties took him to West Texas, Oklahoma and Kansas.

In 1924 Mr. Belstrom resigned from the White Oil Corporation to become head of the land department of Mills Bennett Production Company, which position he held until his recent promotion to the position of vice president. Mr. Belstrom is a native of Minnesota, where he was born in 1893.

Frank Hart, president of the Hartol Refining Company, has returned to New York after several weeks abroad.

* * *

John M. Vetter, consulting geologist, Houston, Tex., spent several days on a trip to southern Louisiana points.

* * *

H. C. Wakefield, of The Texas Corporation refinery at Casper, Wyo., visited his company's Denver, Colo., offices recently.

* * *

E. E. Overton, bulk sales manager of Shell Eastern Petroleum Products, Inc., is back at his desk after a week in New England.

* * *

Miles Lesh, formerly connected with the W-K-M Company, Houston, Tex., entered business for himself, opening an advertising agency.

* * *

Monte Warner, independent operator of San Angelo, Tex., is convalescing from a successful operation at Mayo Brothers' Clinic at Rochester, Minn.

* * *

A. R. Wilson, of Denver, Colo., western manager of the Texas Production Company, made a trip to Billings, Mont., and from there left for a conference with company officials in New York.

* * *

Harry Olney, for a number of years in the old Lima Field of northwestern Ohio, and now a resident of Denver, Colo., made a trip to Washington, D. C., and stopped off west for several days in Toledo, Ohio.

* * *

W. W. Keeler, chief geologist with George F. Getty, Inc., at Fort Worth, Tex., has been transferred to Tulsa and will be connected with the Minnehoma Oil Company. The Fort Worth office has been closed.

* * *

H. E. Dailey, of the Midwest Refining Company, with Denver, Colo., offices, addressed the Casper, Wyo., Chamber of Commerce on the work being done by oil companies to expand their market for black oil and asphalt.

* * *

David Donoghue, technical advisor of the special committee representing the Independent Petroleum Association, Mid-Continent Oil and Gas Association and crude purchasers in Texas, Fort Worth, Tex., has been in Houston on business.

* * *

John G. Gillespie, Toledo, Ohio, spent the latter part of the week looking over the oil fields around St. Marys, Wapakonetta, Buckland, Venedocia and other areas in the southwestern part of the old Lima Field of northwestern Ohio.

* * *

Harvey C. Dever, vice president of the Petroleum Heat & Power Company, who has been suffering a prolonged siege of the grippe, is expected to be up and around again. Mr. Dever has been confined to his bed in Baltimore, Md., since late December.

* * *

L. E. Barrows, division manager of The Texas Company, Fort Worth, Tex., is in New York attending the annual meeting of the district managers. Mr. Barrows' district is comprised of West Texas, New Mexico and the lately added State of Arizona.

* * *

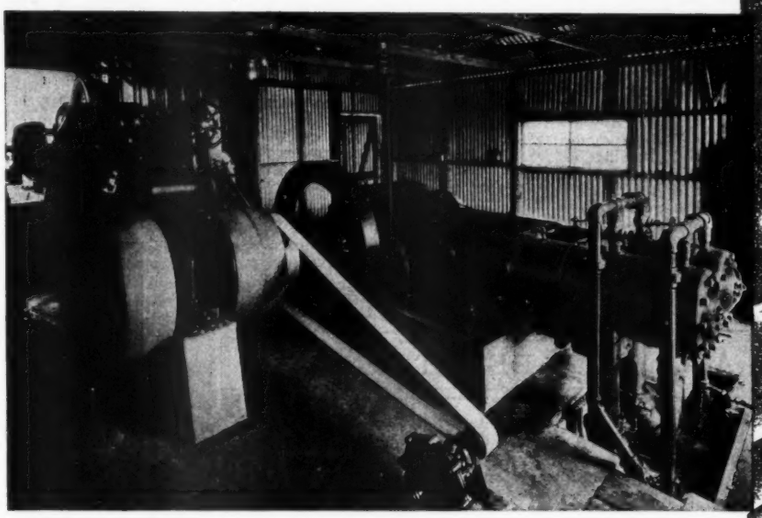
B. C. Lucas, of San Antonio, Tex., was elected president; T. N. McNeil, of Houston, Tex., vice president; and M. L. Kelly, of Houston, secretary-treasurer, of the Louisiana Oil & Development Company, a Texas corporation, at a meeting of stockholders in Houston.

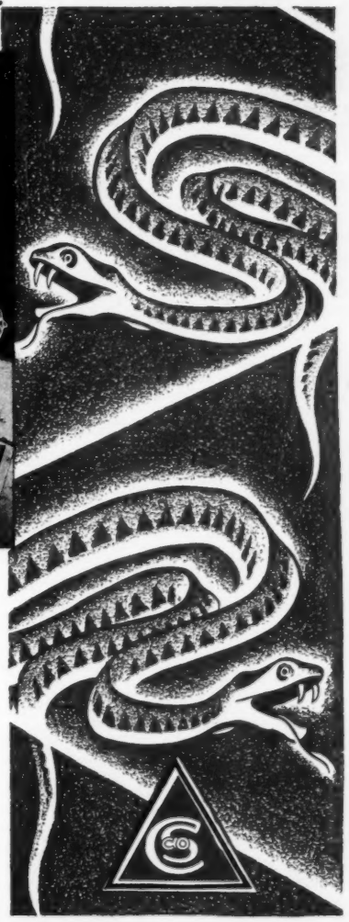
* * *

Alex W. McCoy, geologist and vice president of E. W. Marland, Inc., sailed January 30, from New York for a six weeks' visit in Italy. He will make a study of the geological conditions of that country during his stay. Mr. McCoy served as president of the American Association of Petroleum Geologists in 1926.

FAIRBANKS-MORSE
CONTINENTAL
75 H. P. TWIN
GAS ENGINE

SMOOTH POWER AT LOW SPEEDS





This 75 H. P. Continental Twin Gas Engine drilling and cleaning out at Oklahoma City, handles the tools perfectly at 12 strokes per minute, the engine running at 110 R. P. M.

"If Continental Sells It....There Is No Better"

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CFB-I

CONTINENTAL

Oil Industry Equipment and Supplies

LANDIS MAKING SOLID ADJUSTABLE DIE HEAD

The Landis Machine Co., Inc., of Waynesboro, Pa., has placed on the market a new solid adjustable die head for application to the various types of special automatic machines with power feed and head-reversing mechanism now used

for threading pipe fittings and valves.

This die head is available in the ¾, 2 and 4-inch sizes. It is compact in design and covers a wide range. The assembly consists of four major parts, all made of high carbon steel, heat treated and ground.

The adjustment for size is effected by two adjusting screws. These adjusting screws lock the die head and impart a rigidity equal to that of the solid die. This die head employs the patented Landis chaser which the manufacturers say insures thread accuracy, high production and low tool cost.

MERIAM MANOMETER IS DISASSEMBLED EASILY

A novel design of U-tube manometers and flow meters for measuring pressure or flow of any liquid, steam or gas is now on the market. The distinctive feature is that they can be removed from the line for cleaning, replacement, etc., without unscrewing the pipe connections. They are made by the Meriam Co., 1955 West 112th Street, Cleveland, Ohio.

An instrument of this type consists of two separable parts—the head, which is permanently attached by the pipe connections to the line, and the housing which carries the scale and tube, and which may be readily removed from the head by unscrewing a convenient wing nut. The top of the housing carries a threaded column which passes completely through the head casting and serves to carry the wing nut. The wing nut engages with a vertical stud in the housing, and serves to hold the two parts of the instrument in place. The rubber gaskets which keep the ends of the U-tubes pressure tight fit into tapered holes in the head communicating with the pipe line, and thus a moderate tension of the wing nut exerts ample compressive force on the gaskets to prevent all leakage. Dowel pins assure correct alignment of the head and housing. Spring clips at the back of the housing hold a cleaning brush suitable for the size of the U-tube used.

The new instruments are expected to be a convenience in the many cases where dirt is carried over from the pipe line into the instrument; or where for any reason it is desired to replace a broken tube or to replace one instrument by another of different capacity. The instruments are designed to withstand all line pressures up to 100 pounds per square inch, and may be supplied to measure any differential pressures up to approximately 50 pounds per square inch or flows giving an equivalent differential.

AMONG THE EQUIPMENT HOUSES

Harry Horton, field representative for Dehydro, Inc., has moved his office from Sapulpa, Okla., to Shawnee, Okla.

The Stacey Engineering Co., which includes the Connersville Blower Co., Inc., the P. H. & F. M. Roots Co., the Wilbraham-Green Blower Co. and the Stacey Brothers Gas Construction Co., has opened a branch office at 235 Montgomery Street in the Russ Building, San Francisco, in charge of E. A. McCallum, district manager.

The Bradford Motor Works has acquired the exclusive sales rights of the A. H. Neilson Manufacturing Co., Tulsa, manufacturer of sucker rod sockets, hooks and elevators, and George B. Morris of Bradford, Pa., president of the Bradford Motor Works, was in Tulsa recently conferring with the company's Mid-Continent salesmen at their annual meeting.

A. C. Dunthorne, of the Whessoe Foundry & Engineering Co., Ltd., Darlington, England, well known British engineer, is in Cleveland, Ohio, consulting with officials and engineers of Arthur G. McKee & Co., engineers and contractors. The Whessoe company recently became exclusive manufacturing agent in Great Britain for the manufacture of McKee oil refinery and blast furnace equipment.

The Meriam Co., Cleveland, Ohio, has completed a 50 per cent extension to its plant. The building will house the welding department and storage, and will allow the entire space in the main building to be devoted to the manufacture and testing of the manometers, flow meters, draft gauges and shock absorbers which form the principal output of the company.

A. E. Ballin, for 15 years president of the McIntosh & Seymour Corp., builders of Diesel engines, which has been purchased by the American Locomotive Co., is retiring. He will be succeeded by Robert B. McColl, manager of the Schenectady works of the American Locomotive Co.

The Propane-Butane Contracting Corp., 405 East Oliver Street, Baltimore, Md., announces that it has been formed by associates of the C. M. Kemp Manufacturing Co., maker of the Kemp system for butane dilution. The company says it will plan, supply equipment for and build butane air-gas dilution plants.

James Morgan has opened offices at 206 Richards Building, Tulsa. He has taken over the Black Gold separator and acts as oil field representative for the Hornbeck sucker rod socket. Associated with him is J. C. Morgan, his son.

NOTES ABOUT TRADE LITERATURE

The Leader Iron Works, Decatur, Ill., has issued two new publications of interest in the marketing division of the oil industry. One is a 32-page catalog of bulk plant equipment. The other, called the "Thrift Book," is devoted to service station equipment.

The Owens-Illinois Glass Co., Toledo, Ohio, has its 500-page catalog and reference book, "Glass Containers," ready for distribution. Printed in colors and bound in flexible covers of black and silver, the book is said to be the most attractive and complete catalog of its kind ever published.

A directory of 65 American aircraft engines has been prepared by the International Nickel Co., New York, giving essential data regarding each.

The Howe Scale Co., Rutland, Vt., has issued an interesting booklet describing its Weightograph, an automatic indicating instrument which can be attached to any type of beam-operated scale from dormant warehouse to railroad track scale. When so attached it converts the beam to an automatic scale without disturbing the scale or discarding anything except one beam stand which is replaced by the Weightograph.

A 52-page booklet, "Large Diesels for Public Utilities," published by the Busch-Sulzer Brothers-Diesel Engine Co., St. Louis, Mo., gives a brief history of the Diesel engine with pictures of interesting installations.

A 32-page catalog issued by the Taylor Forge & Pipe Works, Chicago, describes seamless forged steel boiler nozzles used as outlets for boilers, tanks, shells and pressure vessels. Dimensions and prices cover nozzles in sizes 1½ inches to 24 inches in 150, 250, 400, 600 and 900-pound standards.

Oxy-Acetylene Tips, published by the Linde Air Products Co., New York, appears in new typographical style and makeup. The magazine is now standard magazine size and larger pictures will be used to illustrate the text.

The January issue of the International Trail, published by the International Harvester Co., Chicago, shows International trucks used as tractors for various types of trailers, including three in oil fields.

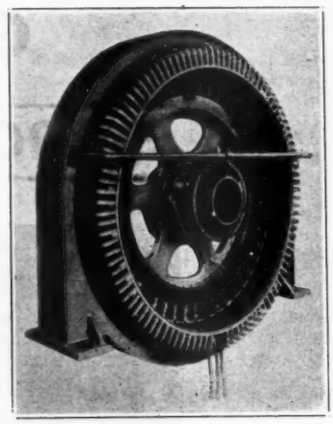
The current issue of the Lufkin Line, published by the Lufkin Foundry & Machine Co., Lufkin, Tex., features the Lufkin slide base unit, designed especially to meet the need for a reduction geared unit adaptable for single-cylinder engine drives.

A new 80-page catalog is being distributed by the M. H. Detrick Co., 140 South Dearborn Street, Chicago. This publication is arranged as a handbook for refractory furnace engineers. Several sections are devoted to the underlying principles of Detrick air-cooled walls and arches.

New catalogs, bulletins, etc., released by the Worthington Pump & Machinery Corp., Harrison, N. J., in the past month follows: D-423-S4, power pumps, vertical triplex single-acting type, forged cylinders, pressure 1,000 to 10,000 pounds; D-450-B1A, deep well pumps, Axiflo, Hiflo, Coniflo, 32 pages, with directions for determining the alignment and water level of a deep well; D-711-S5, power vacuum pumps, horizontal single double-acting; S-550-B2, gas engines, horizontal four-cycle double-acting, 36-inch stroke and over, with pipe line tables, charts and formulas; W-318-S2, centrifugal pumps, Type UA, two-stage volute; W-318-S7, centrifugal pumps, Type UL, two-stage volute; W-320-S1, centrifugal pumps, underwriter fire pumps.

SYNCHRONOUS MOTORS TO APPEAR IN A NEW FRAME

The Electric Machinery Manufacturing Co., Minneapolis, Minn., announces that an arc-welded fabricated steel stator frame construction will now be used for all medium and slow-speed E-M synchronous motors. A recent change from a two-



piece cast iron stator to a welded steel stator for small size motors completes the change-over to fabricated steel stator frames. This change makes uniform in appearance and general construction the entire line of E-M engine type and coupled pedestal type synchronous motors.

The box-type stator construction is used for the entire line of E-M slow-speed synchronous motors. This type of stator construction, according to the manufacturer, gives increased strength and rigidity, decreased weight, increased ventilation, more pleasing appearance and uniformity of construction.

PIPE CLEANING MACHINE PERFECTED BY DEARBORN

The element of hand labor in cleaning pipe before reconditioning has been a large and serious item in the total cost. Reduction of this expense has, therefore, offered a lucrative field for experimentation in the production of a machine to replace the hand labor.

The Dearborn Chemical Co., Chicago, has announced perfection of the Dearborn pipe-cleaning machine, Jinnett patent, which removes the dirt, dust and old coatings, removing even those coatings that are more or less tacky, and is so designed as to free itself from the dirt and deposits removed from the pipe and will not gum to the extent of preventing the cutters from functioning. The only requirement for successful operation, according to the manufacturers, is that the cutting tools be kept sharp and in proper adjustment. These cutters may be sharpened on an ordinary emery wheel.

The Dearborn pipe-cleaning machine requires about an 8-inch clearance for operation and permits pipe to be cleaned, either when elevated 8 inches off the floor of the trench or when removed from the ditch with similar clearance.

The condition of the pipe determines the speed with which the machine is pulled along the line to effect thorough cleaning. One man drags the cleaner along the pipe, while the rotary cutting motion is provided by alternate pulls against the vertical lever in practically the same motion as two men handling a cross-cut saw. The machine opens and closes readily, the same as a pair of tongs, making it handy for passing over welds, collars, etc.

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ITIES
2500 feet
2500 feet
3500 feet

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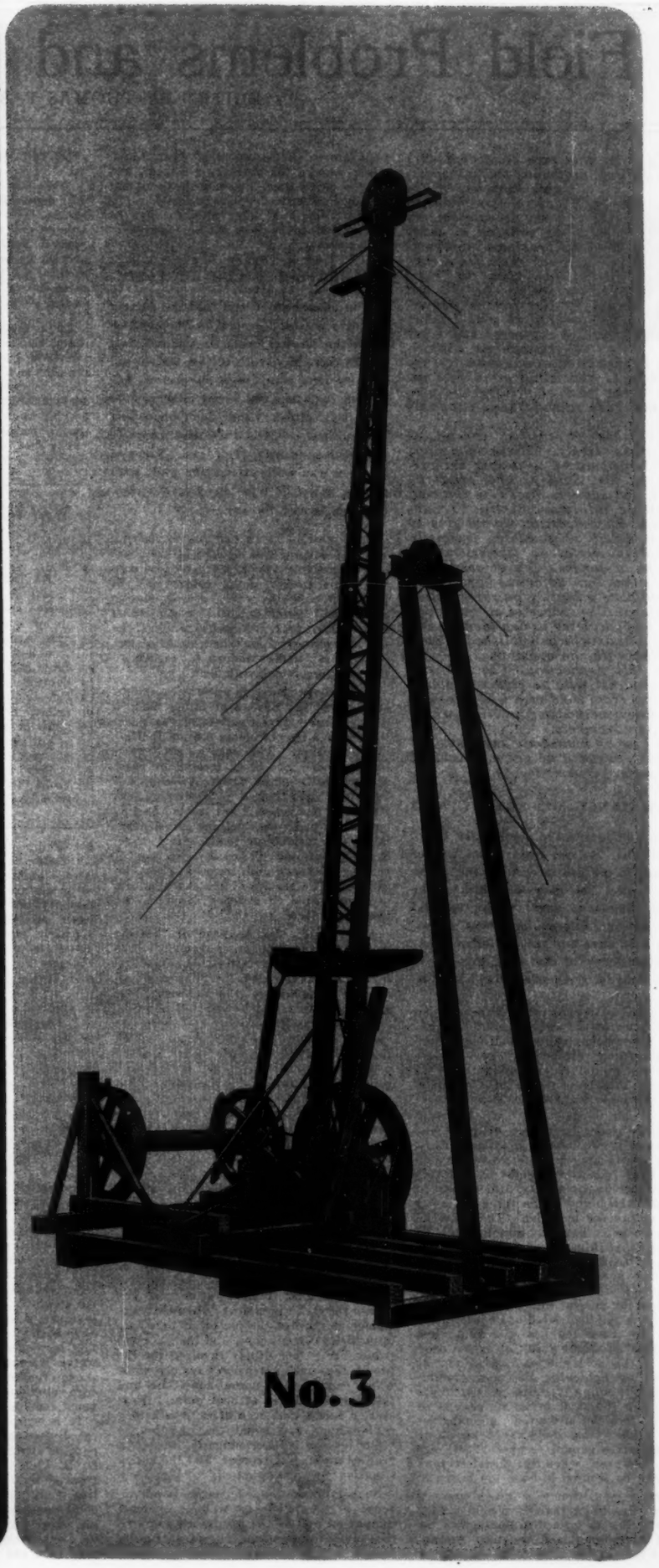
ANIES



No. 3

Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.

Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.

In case an immediate answer is important, one will be given by mail if the writer requests it.

CONSISTENCY OF ROTARY MUD

Your answer to the question by E. E. S. on what is good rotary mud was of interest to me and it was helpful as far as it went. You gave some idea of the weight that mud ought to be, but did not give any information about consistency. Is there any rule to follow about the consistency of the mud, that is, to get it right for the best results?—Y. N. E.

"There is considerable difference of opinion as to the character of mud desired for various drilling conditions, chiefly concerning consistency," says Hallan N. Marsh, production engineer for the General Petroleum Corp. of California, who provides this answer to your question:

"It is generally agreed that a mud should be heavy enough to withstand any gas pressure that is likely to be encountered, but increasing weight by ordinary means increases viscosity, which may be objectionable, and often necessitates a cash outlay for material. The practical compromise is hard to establish. It is believed that in many cases, heavier muds are used than are needed, and that most blowouts are caused either by loss of circulation (or otherwise lowered fluid level) or by gas-cut mud. Both of these conditions may be caused or at least made worse by using too heavy a mud; loss of circulation is the result of excess pressure in the hole and can sometimes be stopped by lightening the mud (preferably not thinning it), and gas cutting is caused by the mud being so viscous or plastic (which ordinarily accompanies high weight) that bubbles of gas from the formation cannot escape. There are times, however, when the heaviest mud that can be secured is none too heavy.

"Proper consistency is much more a matter of opinion than is weight. This is partly due to failure to distinguish between consistency and weight. An apparent viscosity of 22½ to 25 seconds by the funnel viscosimeter has been found great enough for ordinary purposes, and at the same time low enough to permit cuttings to settle out satisfactorily in the ditch. Where a hole tends to cave or circulation to be lost, thicker mud may be necessary."

IS HEATING VALUE REDUCED?

You often hear it said that the natural gas does not heat as well as it should because the gasoline has been removed from it. Is there any truth in this statement? I know that many users of natural gas believe that they are being victimized in some way, although they don't know just how. They just feel that they ought to get more heat from their gas. Some of the men who work around the wells with me say it is true that removing the gasoline does impair the gas.—R. N. U.

The question as to the loss of heating value of natural gas through the removal of the gasoline vapor that the gas contains has caused much controversy in which the public in general and legislative bodies and public utilities commissions have taken part. Notwithstanding the several sources of information available, the general understanding in regard to this question remains disturbed.

In the hope that this uncertainty might be removed the Bureau of Mines made a comprehensive investigation of the problem through its petroleum station in Bartlesville, Okla. The natural gas examined included gas being treated at gasoline plants in many different fields, not only "dry" gas treated by absorption, but also rich "casinghead" gas treated by this method, in order that definite information might be available as to the effect of recovering gasoline from natural gas of varying richness and from different localities. The results of the investigation were presented in a report prepared by Donald B. Dow.

In general, the decrease in heating value of natural gas from removal of the gasoline vapor is overestimated. The loss in the B.t.u. value of the "dry gas" ordinarily supplied to the domestic consumer was found to be about 2 per cent after the gasoline vapor had been removed, but for "casinghead" gas, which rarely reaches the domestic consumer, the percentage loss is larger. As the gasoline vapor in natural gas is usually accompanied by proportionate amounts of other constituents of high heating value, a high gasoline content usually indicates a gas of high heating value even after the gasoline has been removed.

The common supposition among a large number of natural gas consumers and many legislators is that when gasoline vapors are removed from natural gas the heating value of the gas must be greatly reduced. This assumption is based on the fact that gasoline vapors have a higher heating value per cubic foot than the hydrocarbons that remain after the gas passes through the plant. When this conclusion is reached the matter is taken up by utilities commissions, and the gas companies are rather deeply involved for the time being, until extensive tests are made which usually show actual conditions and the truly small loss of heat units. However, it seems that even after satisfactory explanations are made the question is often not settled permanently, for in a year's time it may reoccur, and the entire situation is reinvestigated.

Such investigation, of course, is an expense to the public as well as the gas companies, and as the results always give the same information, no advantage is gained.

DETERMINING GAS RESERVES

Will you please tell me if there are any dependable methods for determining the gas reserve in a structure to a reasonable degree, say within 5 to 10 per cent? Several methods suggested to me have proved impracticable when put to use. Such a method should be able to estimate closely the total gas recovery as well as the wisest monthly recovery.—V. S. B.

There seems to be general agreement that strict mathematical interpretation of the formulas involved in estimating gas reserves will not give accurate results. An accurate estimate of any gas reserve is dependent mainly upon a complete engineering knowledge of the gas field and of the producing conditions in that field.

The fact that the escape of gas from a reservoir is accompanied by a proportionate decline in pressure provides the basis for estimating underground gas reserves. Two standard methods of making such estimates are the pressure-volume and the porosity methods. The first of these is based directly upon Boyle's law, "At a constant temperature the volume of a given quantity of gas varies inversely as the pressure to which the gas is subjected." In the other method the area, thickness and porosity of the sand and the pressure are used as factors in determining the quantity of gas in a pool.

Either of the methods provides a basis only, and the real reserve estimate should be based upon a complete study of the gas field, including such phases as water encroachment, variation of sand thicknesses, the availability of gas or the ability of the sand to produce the gas at high back pressures, a study of the sand porosity, determination of whether the producing formations are consolidated or unconsolidated and other conditions.

In all calculations involving an estimate of gas reserves it is assumed that the reservoir remains the same, but this assumption often is incorrect because, owing to encroaching edgewater or bottom water, the reservoir constantly is being reduced in size. The shut-in pressure, which is a measure of the rock pressure, is higher therefore than it would have been if the size of the reservoir had not been decreased by the encroaching water. Recent investigations seem to have shown that estimates made by the pressure-volume method in the past have been much too high.

It is suggested that you obtain from the United States Bureau of Mines reports of investigations 2,929 and 2,930 by H. R. Pierce and E. L. Rawlins. These reports, which are the result of exhaustive study and investigation, offer a fundamental basis for controlling and gauging natural gas wells. Part 1 is devoted to computation of the pressure at the sand in a gas well.

WHY WAS IT CALLED THAT?

CELLAR

Just as a cellar in the building trades is a room or set of rooms below the surface of the ground under a dwelling or similar structure, so in oil well drilling a cellar is a hole dug under the derrick to facilitate the handling of pipe and connections. The oil well cellar thus has much in common with any cellar. Sometimes it is lined with wood or concrete.

For those interested in the origin of words it might be added that "cellar" is derived from the Latin "cella," a storeroom, which is related to "celare," meaning to hide.

PERMIAN BASIN BOUNDARIES

I will consider it a favor if you will give me your understanding as to the boundaries of the Permian Basin of West Texas. There seems to be some differences of opinion.—F. A. E.

This question is a rather broad one, for as you indicate, there are differences of opinion. The following is quoted from Dr. J. A. Udden's preface to H. W. Hoots' work on "Geology of a Part of Western Texas and Southeastern New Mexico, with Special Reference to Salt and Potash," published in U.S.G.S. Bulletin 780, "Contributions to Economic Geology," 1925:

"The area under discussion is in western Texas and southeastern New Mexico and includes the southern portion of the Llano Estacado, the northern edge of the Edwards Plateau, the upper Colorado River Valley and the central Pecos River Valley. It lies in latitude 30° 30′ to 32° 58′ north and longitude 100° 37′ and 104° 15′ west. The area covers approximately 25,000 square miles and is roughly rectangular in outline. It includes Scurry, Borden, Dawson, Gaines, Andrews, Martin, Howard, Mitchell, Sterling, Glasscock, Midland, Ector, Winkler, Loving, Ward, Crane, Upton and Reagan Counties and the northeast half of Pecos and Reeves Counties in Texas, and the south half of Lea County and southeast quarter of Eddy County in New Mexico."

This describes the basin in which salts from the Permian seas have been deposited and is perhaps as good as any for outlining this area. Over practically all of it oil and gas in commercial quantities have been found.

ERRORS IN METER READING

I would like to know the best method of determining the error in measuring gas by orifice due to water vapors. The line pressure is 40 pounds gauge, flowing temperature 80° F., gravity of gas .73, gasoline content about 1.85 G.P.M. and temperature of oil and gas from wells about 110° F. Some wells make a great amount of water with the oil and gas. Any other information concerning water vapors at ordinary temperatures and pressures below 40 pounds will be appreciated.—R. B. W.

This department has met difficulty in obtaining specific information on this problem, as it seems that while it is known that water vapors are carried by gas in some instances, a means of determining the error in measurement through orifice meters is not simple.

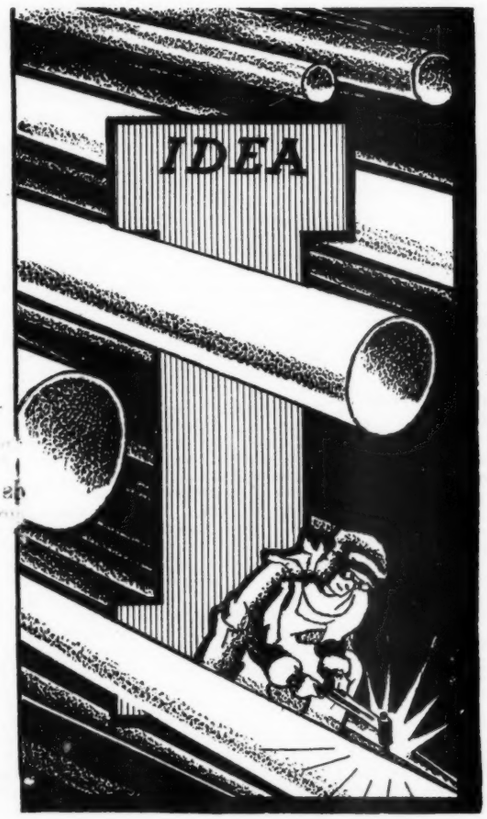
If this water is in the form of water vapor the way to determine the amount carried would be to assume that the gas is fully saturated with this water vapor and refer to tables prepared by John Diehl, Metric Metal Works, Erie, Pa., and published in that company's book on orifice meters. This would give you the quantity of water carried, and it could be deducted from the total amount of gas passing the meter.

If the water is in liquid form and carried as entrained moisture in the gas it will not be measured by the orifice meter, and its presence can be neglected for it would not appreciably influence the meter readings. You are referred to Mr. Diehl for further details of this problem.

WORD "THROUGH" OMITTED

Attention has been called to the fact that on this page in the issue of January 15 the word "through" was omitted in the definition of "polished rod" under "Why Was It Called That?" The sentence should have read: "Other rods receive the same name and all run through packing glands and have a bright appearance."

The New Principle that Upset Traditions of Ditcher Design and Performance



The faster the ditch is opened, the faster pipe can go in.

The *B-G Idea* is dedicated to that proposition alone. Weight and power are concentrated upon moving material out of the ditch-to-be.

A radically new line of ditchers with a radically new *cutting* action has been created.

Until the *B-G Idea* came into the picture, the basic ditch-digging principle was a shoveling action. Buckets shoveled out the ditch.

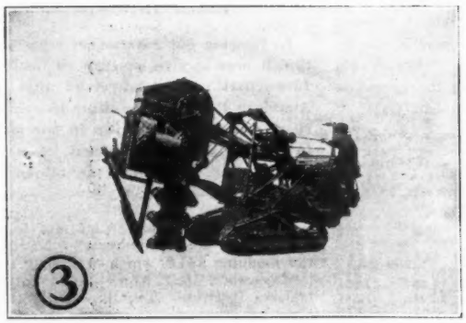
But the *B-G Idea* is dedicated to *cutting* ditch, not *shoveling* it.

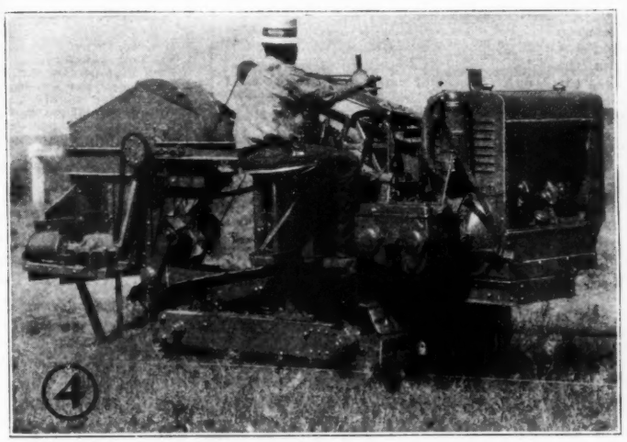
High-speed digging teeth, closely spaced, on a vertical digging boom hold tightly against the digging face.

This invention cuts or mills through the ground, like a high-speed milling machine goes through steel.

But because the *B-G Idea* is so basically simple, the machines are simple. They are lighter, more compact, more easily handled. But they go through the hard spots that other ditchers pass by and they show higher speeds everywhere.

Ask for the Barber-Greene Line Book; it shows the New, Long Line of Barber-Greenes that wait to help you lick 1931 ditching jobs. Send for a copy today.





- Standardized Belt Conveyors
- Portable Belt Conveyors
- Portable and Self-propelled Flight Conveyors
- Self-propelled, Self-feeding Bucket Loaders
- Flight and Belt Car Unloaders
- Snow Loaders

STANDARDIZED MATERIAL HANDLING MACHINES

GREENE

Aurora, Illinois

Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

ELECTROLYTICAL PROCESS FOR ACID RECOVERY

Will you give a description of the electrolytical process for the recovery of sulphuric acid from sludge acid? We would like to know of some publication on the subject of acid recovery?—H. K. A.

The use of electrical precipitation process, now used for the recovery of sulphuric acid, was developed by Dr. Frederick G. Cottrell in 1905 as a means for eliminating a serious smoke nuisance near San Francisco.

This process utilizes an electrical discharge produced by a high potential unidirectional current from a more or less filamentary surface placed between grounded electrodes with an extended surface. The filamentary element is the discharge electrode and usually takes the form of a wire or a small diameter rod, and the extended ground surface is the collecting electrode and is in the form of a tube or a series of plates.

The precipitator consists of a multiple of discharge electrode and collecting electrode combination varying in number with the volume of gas treated and the nature of the suspended matter to be removed. For the treatment of sulphuric acid mist a lead covered star section iron or copper wire of about three-eighths inch diameter is used. The collecting electrode is usually a tube, 8-inch diameter and about 10 to 12 feet long. This tube has been made of lead but more recently tubes made of electrode carbon have been used with certain advantages over lead. When treating sludge acid the electrical precipitators really function as a dephlegmator. The collected acid is returned to the concentrator and the freed gases and water vapor are discharged to the atmosphere.

The precipitator is operated with the temperature of the inlet gases from 200° to 250° F. The gas temperature from the low stage unit is 150° while from the high stage unit the temperature may reach 400° F.

The average concentration of acid recovered ranges from 41 to 62 per cent sulphuric acid.

This outline is based on the article by P. E. Landolt, in Petroleum Mechanical Engineer, October 1930, Page 98. An extended bibliography is appended giving a list of technical articles on the subject.

CONSTANTS OF COMMERCIAL BUTANE

We have not been successful in locating the definite characteristics of butane, such as is being offered in cylinders and special tank cars, and want to know especially the vapor pressure, coefficient of expansion, volume of gas per pound, and heating value per pound. Any information about the physical characteristics of butane would be appreciated.—T. L. B.

Commercial butane is a liquefied product obtained from natural gas which consists of a mixture of normal and isobutane with small quantities of propane and the pentanes. The constants, representing this product, are from the Phil fuels company, Detroit.

PROPERTIES OF COMMERCIAL BUTANE

Vapor pressure	Lbs./sq. in.
°F.	gauge
70	33
90	53
100	65
105	71
130	110
Specific gravity	
Liquid (water = 1)	0.576
Gas (air = 1)	1.95
A.P.I. gravity of liquid at 60°	114.2
Boiling points	
Initial	12
Final	30
Lbs. per gal. liquid	4.8
Cu. ft. gas per lb. of liquid	6.7
Cu. ft. gas per gal. of liquid	32
Mean coefficient of thermal expansion from	
0° F. to 50° F.	0.000303
50° F. to 100° F.	0.00118
Maximum limits of inflammability Bureau of Mines Bull. 279	
Gas per cent in gas-air mixture for lower explosive limit	2.0
Gas per cent in gas-air mixture for max. rate flame propagation	3.6
Gas per cent in gas-air mixture for upper explosive limit	6.6
Maximum rate flame propagation cm./sec. in 2.5 cm. diam. tube	82.5
Heating value	
B.t.u. per cu. ft.	3,200
B.t.u. per lb.	21,420
B.t.u. per gal.	102,400
Specific heat of vapor at 60°	0.458
Latent heat of vaporization at boiling point	
B.t.u. per lb.	170
B.t.u. per gal.	830

SPECIFIC GRAVITY OF NATURAL GAS

Will you kindly advise where I can get information on how to use the gravity bottle for testing specific gravity of natural gas?—C. E. M.

The specific gravity of natural gas may serve as a reliable indication of the general properties of the gas; especially with respect to its value as a possible source of natural gasoline. Some natural gas is practically pure methane; such gas is absolutely dry, consequently when a gas is found to have a specific gravity approaching that of methane, 0.554, it is safe to conclude that it cannot be a commercial quantity of gasoline. A high specific gravity is favorable and suggests further investigation.

The apparatus most frequently used for determining the specific gravity of natural gas is that of Schilling, so often called a gravity bottle, because it is simple and inexpensive for making a rapid determination in the field. It consists of a glass jar, almost filled with water, into which is suspended a graduated glass tube fitted with a three-way stop-cock in a metallic tube in the top of which is set a perforated piece of platinum. This perforation is very small and serves as the orifice through which the air and gas pass very slowly. The rate of flow is used in the calculations.

The determination is made by filling the jar to a little above the graduation mark on the tube. The tube is then raised, to fill it with air, the stop-cock closed, the tube lowered into the water and the stop-cock opened to the orifice plate. A stop-watch is used to record the time in seconds required for the air to pass up from the lower graduation to that at the top. This operation should be repeated until checks are obtained. Then the procedure is repeated but replacing the water in the tube each time with gas. The volume of water must be kept constant.

The time for gas to pass through the orifice will vary with the density. The specific gravity, when air equals one, is obtained by dividing the squared gas time by the squared air time. If G is the number of seconds required for the gas to pass through the orifice and A is the number of seconds required for the same volume of air, then specific gravity $= \frac{G^2}{A^2}$

The Schilling specific gravity apparatus is described with the directions for making the determination, in Diehl, Natural Gas Handbook, page 199. Also Burrell, Recovery of Gasoline from Natural Gas, page 112.

ELECTRIC POWER COST WITH FUEL OIL

Have you any surveys which give reliable cost figures for generating electricity when burning fuel oil?—A. J. B.

An extended analysis of power costs, with Diesel engines, is to be found in Diesel Engines, by Morrison, chapter 5, page 62. An example, page 80 and 81, is based on the operation of a plant at Miami, Okla., as of May 1-30, 1920, as tabulated.

Kw. hr. output	178,000
Fuel oil, gal.	14,003
Fuel cost per kw.-hr. ($2.55/bbl.)	$0.00483
Labor cost per kw.-hr.	0.00518
Lubricating oil, etc.	0.00580
Insurance and taxes, 4 per cent	0.00170
Depreciation, 6 per cent	0.00250
Interest, 6 per cent	0.00250
Total cost per kw.-hr.	$0.02251

The charge for fuel oil is much higher than the present market; probably could be replaced at this time at about 50 cents a barrel. A more recent report is that by J. H. Bender, in Power, February 18, 1930, page 258, describing the operation of a municipal plant at Duncan, Okla.

	Year ending June 30, 1928	Year ending June 30, 1929
Total output, kw.-hr.	2,096,300	2,146,650
Peak load, kw.	840	680
Plant load factor, per cent	26.5	27.1
Load factor on units, per cent	68.1	67.7
Fuel oil used, gal.	198,618	208,210
Kw.-hrs. per gal. fuel	10.55	10.31
Lubricating oil, gal.	2,204	2,614
Labor per kw.-hr., mills.	3.23	3.38
Maintenance: Buildings, etc.	0.038	0.116
Engines	0.791	1.112
Fuel oil	3.756	....
Lubricating oil	0.579	(*) 3.339
Miscellaneous	1.10	1.00
Total cost, mills per kw.-hr.	9.497	9.827

*Both.

It is stated that fuel oil ranging 24 to 25 gravity was sometimes used, but the normal fuel oil was 32 to 34 gravity gas oil.

DICHLORODIFLUOROMETHANE REFRIGERANT AND FIRE EXTINGUISHER

Can you furnish information about the compound of methane and fluorine which is claimed to be a new refrigerating agent and fire extinguisher?—A. M. D.

A new refrigerating agent of organic origin, dichlorodifluoromethane, was announced by Midgley and Henne at the Atlanta meeting of the American Chemical Society, April 7-11, 1930. The method for preparing this substance and its properties may be found in detail in Industrial and Engineering Chemistry; 22, 542, 1930.

As the name indicates, it is methane in which two hydrogens have been replaced by chlorine and the other two hydrogen atoms by fluorine, as shown by the formula $CC1_2F_2$. The boiling point is minus 22° F. and it melts at minus 247° F., it is therefore a gas at ordinary temperature. When pure and dry it is noncorrosive with high and low carbon steels, stainless steels, monel metal, aluminum, copper, tin and tin-lead solders. It is unsatisfactory with the brasses and magnesium alloys. Water causes decomposition and corrosion. It is nontoxic and noninflammable.

The manufacture of the product may be briefly outlined: Sublimed antimony trifluoride and antimony pentachloride are placed in an autoclave and carbon tetrachloride added. Then steam is turned on. The reaction starts immediately and when the pressure reaches 60 pounds distillation is started until the desired endpoint is obtained.

The fire extinguishing value of dichlorodifluoromethane has been investigated by the Bureau of Mines, Report of Investigations 3,042, October, 1930. Tests were made to determine the quantities required to extinguish methane flames. It was concluded that the extinctive effect of dichlorodifluoromethane is almost identical with carbon tetrachloride on a volumetric basis. It is far better than other gases, such as carbon dioxide, helium, nitrogen, and argon. Whereas it requires 10.2 volumes of argon, 6.3 volumes of helium, 6.0 volumes of nitrogen, and 3.2 volumes of carbon dioxide to render 1 volume of methan noninflammable, only 1.4 volumes of either dichlorodifluoromethane or carbon tetrachloride are required.

STANDARD TABLES FOR PETROLEUM INDUSTRY

In figuring out government reports we find it necessary to have an oil temperature chart. We understand that the American Petroleum Institute has such a chart and are writing you in our effort to procure such an instrument. Can you give us any information as to how to procure this?—W. O. C.

The density of petroleum oils is obtained by a special hydrometer based on the modulus 141.5 which was suggested, in December, 1921, by the American Petroleum Institute. The Bureau of Standards has prepared the tables based on this modulus and designated the scale A.P.I., to clearly distinguish it from any other scale for light liquids, when converting indications to the standard temperature, to specific gravity, adjusting volumes, and for estimating weights.

The tables are published in Circular 154, Bureau of Standards, under the title National Standard Petroleum Oil Tables. It may be obtained for 30 cents from the Superintendent of Documents, Government Printing Office, Washington, D. C.

WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Continued from Page 38)

Jordan Drlg. Co.'s No. 7 Cole, 265 ft. S, 1,459 ft. W, NE cor., Sec. 49, in Sec. 50-18-4 ..... Location (reported drlg. in error).
United Carbon Co.'s No. 6 Spade, 1,180 ft. S, 140 ft. E, NW cor., Sec. 27-19-4 ..... Location.

RICHLAND PARISH

W. C. Feazel's No. 1 Simon, 2,406 ft. W, 2,020 ft. S, NE cor., Sec. 11-16-6 ..... Began drlg. Jan. 21; cmtd. 12-in 202 ft; 8-in. 784 ft; drlg. 1,810 ft.
La. G. & F. Co.'s No. 1 Binion, 813 ft. E, 496 ft. N, SW cor. NW, Sec. 2-16-6 ..... Cmtd. 6-in. 2,300 ft.
United (was Southern) Carbon Co.'s No. 2 Cooper, 660 ft. N, 3,551 ft. E, SW cor., Sec. 13-16-6 ..... Location.
Southern Carbon Co.'s No. 1 Hixson, 660 ft. N, 760 ft. W, SE cor., Sec. 33-16-6 ..... Cmtd. 6-in. 2,285 ft.
Southern Carbon Co.'s No. 7 F. B. and E. A. Sartor, 2,540 ft. S, 660 ft. E, NW cor., Sec. 17-16-7 ..... Cmtd. 6-in. 2,285 ft.
State Line O. & G. Co.'s No. 1 Noble-Morris, 917 ft. N, 389 ft. W, SE cor. SE SW, Sec. 35-16-5 ..... Cmtd. 6-in. 2,300 ft.
United Carbon Co.'s No. 1 Lindow, 1,980 ft. S, 37 ft. E, NW cor., Sec. 15-16-6 ..... Rig up.
United Prod. Co.'s No. 1-A Wolf, 660 ft. S, 1,650 ft. E, NW cor. SW, Sec. 35-17-6 ..... Rig up.
United Prod. Co.'s No. 1-B Wolf, 1,980 ft. N C, Sec. 34-17-6 ..... Rig up.

SABINE PARISH—ZWOLLE

W. M. Coates' No. 2 Sabine Lbr. Co., 330 ft. S, 330 ft. E, NW cor. NW SW, Sec. 1-7-12 ..... Location.
W. M. Coates' No. 2-B Sabine Lbr. Co., 330 ft. W, 785 ft. N, SE cor. SW SW, Sec. 1-7-12 ..... Location.
Davis & Tyson's No. 1 Neville & Roberts ..... Flowed 75 bbls. 2,187 ft; arranging to shoot 2,400 ft.
O. A. Gautier et al's No. 1 Mischell, 330 ft. E, 150 ft. N, SW cor. SE NW, Sec. 30-8-12 ..... Rig up.
R. L. Gay's No. 2-A Sabine Lbr. Co., 330 ft. N, 330 ft. E, SW cor. NE NW, Sec. 1-7-12 ..... Dry 2,334 ft; drlg. 2,432 ft.
F. M. Hood's No. 1-B Winston (was No. 2), 700 ft. E, 425 ft. S, NW cor., Sec. 31-8-12, Zwolle Townsite ... S.D. 1,065 ft.
Ab Jones et al's No. 1 Ferguson, 330 ft. N, 330 ft. W, SE cor. NE SW, Sec. 33-8-12 ..... S.D.; waiting for 6⅝-in.; T.D. 2,380 ft.
Ohio Oil Co.'s No. 1 Brown, 330 ft. N, 330 ft. W, SE cor. SW SW, Sec. 35-8-12 ..... W.O.S.R; 2,000 ft. fluid; T.D. 2,535 ft.
Ohio Oil Co.'s No. 6 Bowman-Hicks, 300 ft. N, 265 ft. W, C, Sec. 2-7-12 ..... Began drlg. Jan. 25; cmtd. 10-in. 205 ft.
Pelican Nat. Gas Co.'s No. 8 La. Long Leaf Lbr. Co., 384 ft. N, 330 ft. E, SW cor. NW SW, Sec. 4-7-11 ... Cmtd. 10-in. 102 ft; drlg. 460 ft.
H. W. Perritt's No. 2 Bowman-Hicks, NW cor. SE NE, Sec. 2-7-12 ..... Top marl 2,199 ft; S.D. csg. 2,000 ft.
H. W. Perritt's No. 3 Bowman-Hicks, 244 ft. S, 122 ft. E, NW cor. SE SW, Sec. 2-7-12 ..... Drlg. 120 ft.
J. M. Tompkins' No. 1 M. R. Stoker, 300 ft. S, 100 ft. W, NE cor. SW, Sec. 10-7-11 ..... Drlg. 1,720 ft.
J. C. Walton's No. 1 Sabine Lbr. Co., 300 ft. S, 300 ft. W, NE cor. NW, Sec. 11-7-12 ..... Drlg. 1,245 ft.

WEBSTER PARISH—SAREPTA

Cassidy & Davis' No. 1 Nickerson, 300 ft. S, 300 ft. W, NE cor. SW, Sec. 29-23-10 ..... Rig up.

ARKANSAS

JOHNSON COUNTY

(Cable tools)

Ark.-La. P. L. Co.'s No. 1 Hudson et al, 660 ft. N, 545 ft. E, SW cor. SE NE, Sec. 14-10-24 ..... S.D; W.O. 3,002 ft.

OUACHITA COUNTY—SMACKOVER

L. H. Hamilton's No. 3 Doyle, 100 ft. E, 400 ft. N, SW cor. SE SE, Sec. 23-15-16 ..... T.A. 2,020 ft.

OUACHITA COUNTY—STEPHENS

J. D. Reynolds' No. 1 Pace, Lot 28, Sec. 21-15-19 ..... W.O.S.R; 2,204 ft.
Wesson & Bonner's No. 1 Wesson, 500 ft. W, 175 ft. N, SE cor. SW NW, Sec. 22-15-19 ..... 300 ft. fluid; W.O.S.R; 2,169 ft. (reported 2,800 ft. in error).

UNION COUNTY—CHAMPAGNOLLE

Ohio Oil Co.'s No. 2 Raulston, 330 ft. S, 330 ft. E, NW cor. NW SE, Sec. 12-17-14 ..... Began drlg. Jan. 26; drlg. 100 ft.
Ohio Oil Co.'s No. 5 R. Pumphrey, 660 ft. S, 660 ft. W, NE cor. NW, Sec. 12-17-14 ..... Location.

UNION COUNTY—EL DORADO

Rice Drlg. Co.'s No. 1 Watley, 150 ft. S, 150 ft. E, NW cor. SW, Sec. 7-17-15 ..... S.D; repairing rig; T.D. 1,520 ft.
Southern Prod. Co.'s No. 1 Wingfield, NE cor. SE NW, Sec. 16-19-15 ..... S.D; title work; T.D. 215 ft.

EAST TEXAS

HARRISON COUNTY

Calatex O. & G. Co.'s No. 6 Argus, 755 ft. N, 699 ft. W, Mile Post 27, in J. Womack Sur. ..... Location.

PANOLA COUNTY

Daisy O. & G. Co.'s No. 1 Rucks, John Palmer Sur. ..... Drlg. chalk 1,687 ft.
Dillon & Bradham's (was W. G. Banks et al's) No. 1 C. O. Baldwin, 1,395 ft. W, 1,362 ft. S, NE cor. Baldwin 290 ac. in Hampton West Sur. ..... Drlg. rock 700 ft.
S. E. Bell et al's No. 1 Burnett Lbr. Co., C, S. B. Hendricks Sur. ..... S.D; W.O. 3,086 ft.
Creighton & Hart's No. 1 Greeny-Kyle, C, Greeny-Kyle 60 ac., Jas. Tippett Sur. ..... Gas blowout 3,704 ft; S.D.
C. D. Neff et al's No. 6 Brumble, B. C. Jordan Sur. ..... Derrick.
Nat. Gas Prod. Co.'s No. 1 H. H. Alvord, 6,777 ft. S, 6,162 ft. E, NW cor., B. C. Jordan Sur. ..... Drlg. 4,319 ft.

MISSISSIPPI

HINDS COUNTY

Feazel O. & G. Co.'s No. 1 Garrett, SE cor. NW, Sec. 2-5-1e ..... Cmtd. 6⅝-in. 2,427 ft.
Cleve Love et al's No. 2 Ridgeway-McGhee, SE cor. NW, Sec. 2-5-1e ..... Rigging up.
Love Pet. Co.'s No. 1 Homestead, SE NW, Sec. 34-6-1e ... Cmtd. 6⅝-in. 2,420 ft.
Love Pet. Co.'s No. 1 Bob Taylor, 275 ft. S, 50 ft. E, NW cor. NE SW, Sec. 34-6-1e ..... Derrick.
Miss. Pet. Co.'s No. 2 Baptist Orphanage, 210 ft. N, 210 ft. W, SE cor. NE SE, Sec. 28-6-1e ..... Began drlg. Jan. 14; cmtd. 15½-in. 20 ft.

RANKIN COUNTY

Miss. G. & F. Co.'s No. 1 Hanna, SW cor. SW NE, Sec. 14-5-1e ..... Derrick.
Pioneer O. & G. Co.'s No. 1 Ragland, NE cor. SW SW, Sec. 12-5-1e ..... Derrick.
Pirtle & Flint's No. 1 Payne, 450 ft. W, 50 ft. N, SE cor. SW SW, Sec. 27-6-1e ..... Rig up.

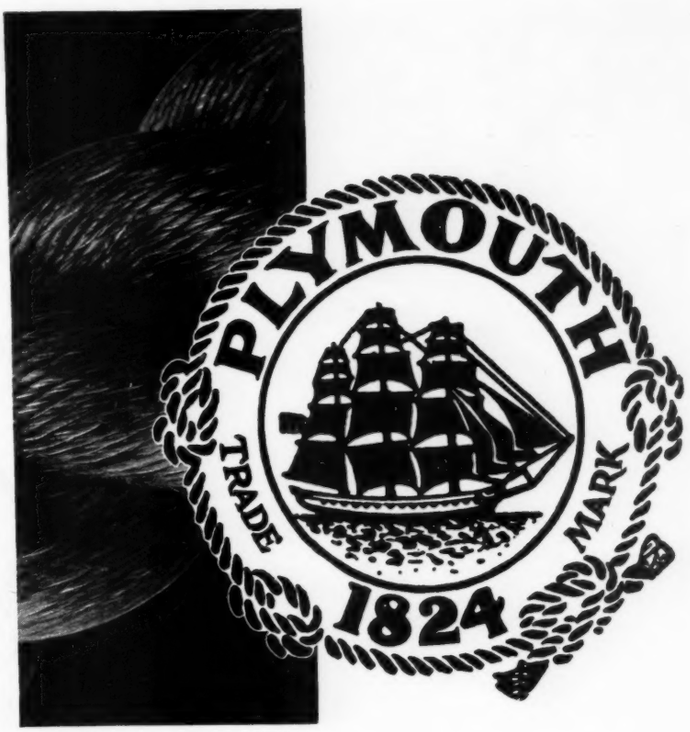
LOUISIANA-ARKANSAS PROVEN AREAS

(Continued from Page 38)

C. D. Neff et al's No. 1 Ramsey, 1,000 ft. W, 400 ft. S, NE cor. SE, Sec. 33-13-16 ..... Drlg. 1,500 ft.
Ernest Nickelson's No. 1 Nabors, 1,200 ft. N, 1,800 ft. W, SE cor., Sec. 32-13-11 ..... Rig up.

LA SALLE PARISH

La. G. & F. Co.'s No. 2-B Tensas, 1,980 ft. W, 1,321 ft. S, NE cor., Sec. 23-7-4 ..... Cored sand and shale 3,266 ft.



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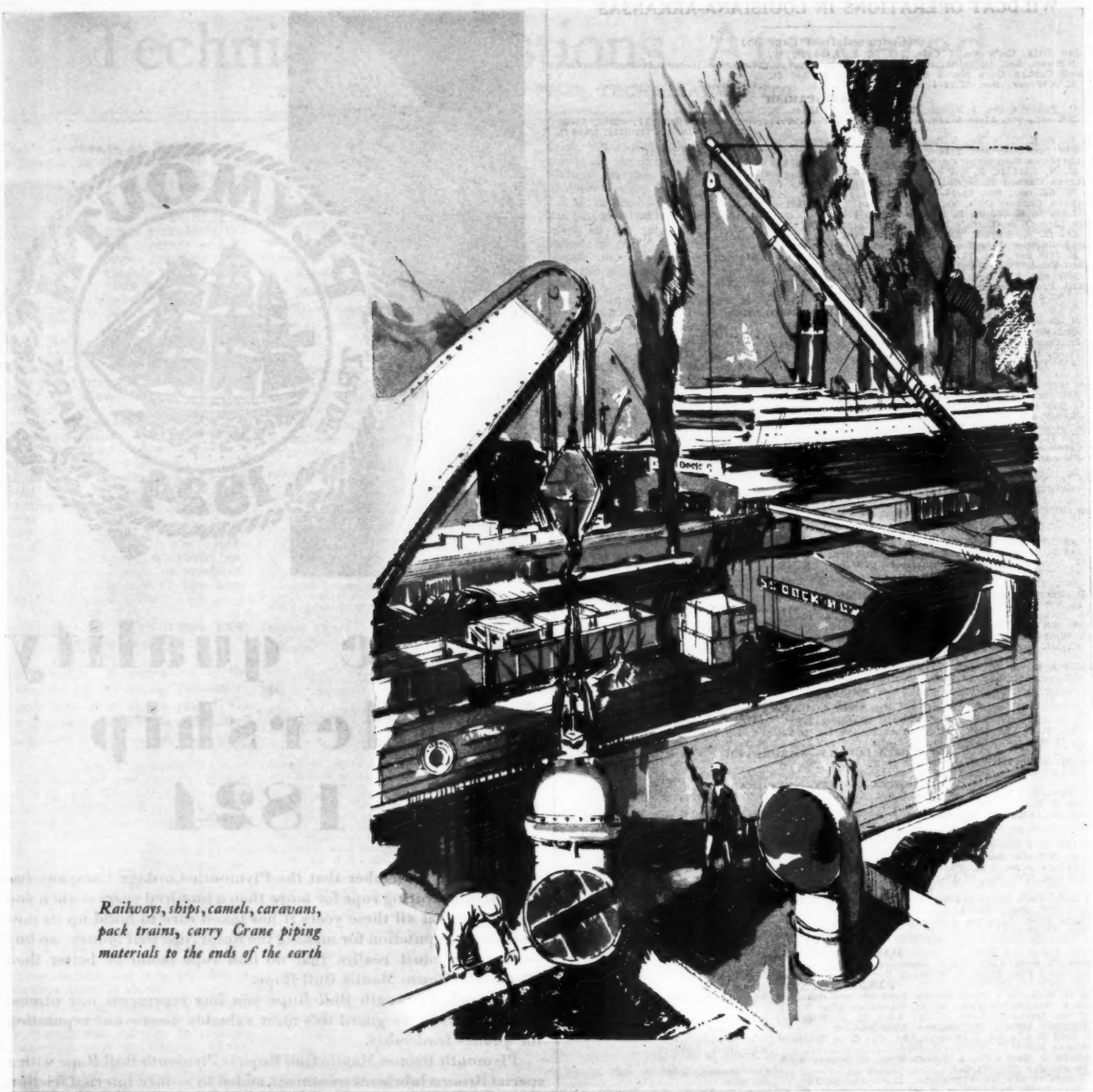


Railways, ships, camels, caravans, pack trains, carry Crane piping materials to the ends of the earth

CRA

PIPING MATERIALS TO CONVEY AND CONTROL STEAM, LIQUIDS, OIL, GAS, CHEMICALS

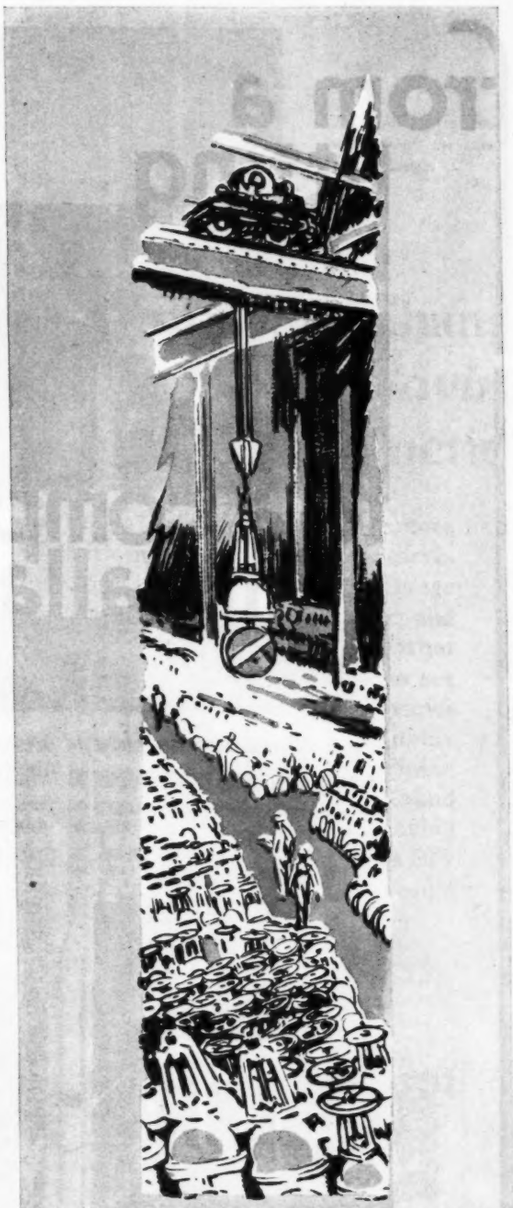
WORLD-TRAVEL
as the boon companion of the oil and gas industry

When oil men in Mesopotamia need piping materials at once, a hurry up call goes out by telegraph or messenger to Bombay. By railroad and burro train, Crane valves and fittings travel to fields amongst the hidden hills of Mexico. Camels have carried them into the wild Abyssinian desert, dog sledges into snow-bound Ontario, and when a well comes in in Burma they go up by river boat from Rangoon.

The quality of Crane piping materials has won them a world-wide demand. The world-girdling Crane distributing organization has placed them within quick and easy reach of oil and gas men everywhere. Just as Crane materials have been developed and improved to meet the rapidly advancing technic of pioneering oil and gas engineers, the Crane service of supply has followed on the heels of oil and gas explorers as they have penetrated the most isolated regions of the world.

Naturally, this distributing organization is most complete and efficient in the United States. In five cities in this country are factories manufacturing industrial piping materials; branches and sales offices in 160 cities; warehouses and depots strategically placed to serve every oil and gas field.

To call on Crane specialists in piping materials, stationed throughout the country to help oil and gas men choose, is assurance of dependable equipment at minimum cost. To call on the Crane delivery resources is a saving of time where time is truly money.



Acres of stock valves wait in Crane warehouses, ready for the hurry up call of oil and gas men

N E

GENERAL OFFICES: 836 SOUTH MICHIGAN AVENUE, CHICAGO · NEW YORK OFFICES: 23 WEST 44TH STREET

Branches and Sales Offices in One Hundred and Ninety-six Cities

from a fitting

to a complete .. installation

put it up to

Power Piping
FOR EVERY INDUSTRIAL NEED

One order may call for a mere fitting, another for pipe bends for oil field work, still another may require high pressure piping in a process plant! In any event the experience of Power Piping Company is varied enough to meet any piping need. Design, fabrication, erection, complete supervision—any phase of piping service with economy and dispatch.

POWER PIPING CO.
PITTSBURGH, PA.

NATCHITOCHES PARISH

W. M. Coats' No. 1 Collins, 730 ft. N, 50 ft. E, C, Sec. 28-9-10 ..... S.D. 3,718 ft.
J. W. Cooper et al's No. 1 Cooper, NW SW, Sec. 35-11-10 .. Arranging D.S. test 2,832 ft.
Cooper et al's No. 2-A Cooper, C SE SE, Sec. 32-11-10 .. S.D; waiting for D.S; T.D. 1,615 ft.
Gulf Ref. Co.'s No. 1 Bodcaw, 1,910 ft. S, 605 ft. W, NE cor., Sec. 13-13-8 ..... Reaming to bottom; T.D. 3,231 ft.
C. M. Talley et al's No. 1 C. M. Talley, 1,980 ft. W, 660 ft. S, NE cor. SE, Sec. 29-11-10 ..... S.D. 500 ft.

RED RIVER PARISH

Lucky Strike Oil Co.'s No. 1 Chaffraix, 200 ft. S, 200 ft. E, C, Sec. 32-12-10 ..... D.S. test 2,820-3,010 ft; S.W. and show oil; arranging to plug back.

RICHLAND PARISH

Alto Gas Co.'s No. 2 Hunt, 660 ft. S and E, NW cor., Sec. 13-17-5 ..... Derrick.
La. G. & F. Co.'s No. 1 Glanton, 262 ft. E, 618 ft. N, SW cor. NW SE, Sec. 33-17-6 ..... Drlg. lime 2,807 ft.
Southern Carbon Co.'s No. 1 C. M. Noble, 4,626 ft. N, 2,254 ft. W, cor. Secs. 7, 8, 17 and 18, in Sec. 37-15-6 .. Location.
Southern Carbon Co.'s No. 1-B C. M. Noble, 2,966 ft. N, 1,525 ft. W, cor. Secs. 7, 8, 17 and 18, in Sec. 37-15-6 .. Location.

SABINE PARISH

Caddo-Sabine Synd.'s No. 1 Smith, Sec. 8-7-10 ..... Rig up.
Davis et al's No. 1 Polly, NE cor. NE NE, Sec. 18-8-12 (was Stacy et al's) ..... Rig up.
Diffie & Barnett's No. 1 Lites (was J. W. Clark's), 330 ft. N, 330 ft. W, SE cor. SW NW, Sec. 34-8-11 .... Began drlg. Nov. 20; cmtd. 10-in. 105 ft.
Franks et al's No. 1 Dew, 200 ft. N, 300 ft. E, SW cor. SE, Sec. 22-8-11 ..... Coring 2,270 ft.
R. L. Gay, tr.'s No. 1-A Sabine Lbr. Co., 212 ft. S, 170 ft. E, NW cor. SE NW, Sec. 1-7-12 ..... 6-in. stuck 2,200 ft; cmtd. 4½-in. 2,290 ft; arranging test 2,690 ft.
Lacy Jessup Oil Co.'s No. 1 Brown Lbr. Co. (was Lacey et al's), C NW NE, Sec. 28-8-10 ..... S.D. 3,160 ft.
Lacey Prod. Co.'s No. 1 Cooper, 330 ft. N, 330 ft. W, SE cor. SW NW, Sec. 30-8-11 ..... W.O.S.R; 1,200 ft. oil; T.D. 2,620 ft.
Lawrence et al's No. 1 Hubley, 330 ft. N, 330 ft. W, SE cor. NE, Sec. 21-7-11 ..... S.D. 2,650 ft.
Lide et al's No. 1 Ponder, 990 ft. N, 990 ft. W, C, Sec. 15-7-11 ..... Top marl 2,395 ft; cmtd. 6-in. 2,385 ft; T.D. 2,407 ft; tested dry 2,412 ft; 100 ft. oil in hole from 2,422 ft; D.S. test dry; show oil and gas 2,300 ft; W.O.S.R.
Lide et al's No. 2 Ponder, 200 ft. S, 200 ft. E, NW cor. NE NW, Sec. 15-7-11 ..... Rig up.
Longoria et al's No. 1 Belton, 330 ft. S, 330 ft. E, C, NE, Sec. 31-9-12 ..... Rig up.
Lyons & Neely's No. 1 Sabine Lbr. Co., NW cor. NE NE, Sec. 12-7-12 ..... Cmtd. 6⅝-in. 2,273 ft.
Magnolia Pet. Co.'s No. 1 R. J. Lucius, 990 ft. S, 990 ft. W, NE cor. NW NE, Sec. 2-5-12 ..... Drlg. black shale 3,038 ft.
Merritt et al's No. 1 Byrd, 200 ft. N, 200 ft. W, SE cor. NW, Sec. 1-7-11 ..... Location.
Frank Melat, Inc.'s No. 1 Sabine Lbr. Co., 330 ft. N, 330 ft. E, SW cor. SW, Sec. 6-7-11 ..... Drlg. 1,975 ft.
Frank Melat, Inc.'s No. 2 Sabine Lbr. Co., 330 ft. S, 330 ft. W, NE cor. NE NW, Sec. 14-7-12 ..... Tested dry 2,500 ft; show gas 2,560 ft; S.D. 2,560 ft.
P. & G. Oil Co.'s No. 1 Williams, 330 ft. S, 330 ft. W, NE cor. SE NW, Sec. 21-7-12 ..... Rig up.
W. P. Pearce et al's No. 1 G. Pearce, 330 ft. N, 330 ft. W, SE cor. SW NW, Sec. 10-7-11 ..... W.O; 150 ft. oil in hole; T.D. 2,600 ft.
D. H. Riddick's No. 1 Scretchfield, 400 ft. E, 400 ft. N, SW cor. NW SE, Sec. 18-9-12 ..... Made 30-ft. hole 3,280-3,310 ft; S.D.
T. G. Shaw et al's No. 1 Sabine Lbr. Co., 150 ft. N, 150 ft. E, SW cor., Sec. 1-7-12 ..... Tested dry 2,477 ft; S.D. 2,683 ft.
Trans-America Oil Corp.'s (was Southland Oil Co.'s) No. 1 Carter, 1,030 ft. W, 345 ft. N, SE cor. SE NE, Sec. 36-8-12 ..... W.O; 60 ft. oil in hole; T.D. 2,515 ft.
A. H. Tarver, tr.'s No. 1 Baker, 330 ft. S, 330 ft. E, NW cor. NE, Sec. 36-8-12 ..... Reaming to bottom; T.D. 4,000 ft.
Triangle Pet. Co.'s No. 1 Sabine Lbr. Co. (was R. B. Whittle's), 330 ft. N, 330 ft. E, SW cor. SE SW, Sec. 36-8-12 ..... Cmtd. 4½-in. 2,260 ft; T.D. 2,274 ft.
Wilson & Son's No. 1 Gandy-Garrett, NW SW, Sec. 4-5-12 (portable rig) ..... S.D. 2,460 ft.
John Woodley's No. 1 Sabine Lbr. Co., 400 ft. S, 330 ft. W, NE cor. SE, Sec. 12-8-12 ..... Began drlg. Dec. 16; cmtd. 10-in. 103 ft.

TENSAS PARISH

Seip et al's No. 1 Fowler, C SW NE, Sec. 10-10-10 ..... S.D. 905 ft.
A. R. Willis et al's No. 1 Currey, 1,320 ft. S, 1,320 ft. E, NW cor., Sec. 39-11-12 ..... Reamed to bottom; S.D. 2,780 ft.

UNION PARISH

Ouachita Nat. G. & O. Co., Inc.'s No. 1 Smith, 660 ft. S, 1,224 ft. W, NE cor., Sec. 36-20-2 ..... Cmtd. 6-in. 2,101 ft; T.D. 2,141 ft.

WEBSTER PARISH

Coyle, tr.'s No. 1 Frazer, 200 ft. N, 200 ft. E, SW cor. NE SE, Sec. 27-23-11 ..... Derrick.
Gehrig's (was Girard Oil Co.'s) No. 1 R. H. Miller, 330 ft. S, 990 ft. W, C, Sec. 16-18-10 ..... Coring 3,503 ft.
Red Hawk Oil Co.'s No. 1 Mathews, 330 ft. N, 330 ft. E, C, Sec. 11-23-9 ..... Rig up.

ARKANSAS

CHICOT COUNTY

R. R. Smith's No. 1 Lytle, 660 ft. N, 660 ft. E, C, Sec. 31-18-3 ..... Cmtd. back to 2,888 ft; T.D. 2,925 ft; arranging whipstock 2,865 ft.

CLAY COUNTY

S. C. Jeffus' No. 1 Underwood, 510 ft. N, 350 ft. W, C NW SE, Sec. 4-20-3 ..... Drlg. 502 ft.

CLEBURNE COUNTY
(Cable tools)

Donnelly-Craver et al's No. 1 Donophan Lbr. Co., SE cor. NW, Sec. 33-11-9 ..... Swedging csg. 2,300 ft; T.D. 3,740 ft.

DALLAS COUNTY

E. C. Brewer's No. 1 W. E. Hillman, 30 ft. E, 40 ft. S, NW cor. SE NE, Sec. 20-10-13 ..... Drlg. broken shale 2,262 ft.
J. H. James, tr.'s No. 1 Fordyce Lbr. Co., 200 ft. S, 200 ft. E, NW cor. NW NE, Sec. 11-9-15 ..... Drlg. 1,342 ft.

GARLAND COUNTY
(Cable tools)

Givens et al's No. 1 Garrett, 660 ft. S, 660 ft. W, C, Sec. 1-8-19 ..... Hole full S.W; pulling 5 3/16-in.; T.D. 3,756 ft.

GRANT COUNTY

Spann & McClung's No. 1 Sarah Page, 660 ft. W, 660 ft. S, NE cor. NW, Sec. 3-3-12 ..... Began drlg. Jan. 24; drlg. 120 ft.

HOT SPRINGS COUNTY

Anisman et al's No. 1 Hinson est., NE NE, Sec. 19-4-16 (portable rig) ..... Claim gas show 14-ft. sand 1,604 ft; no 5 3/16-in. csg. set; S.D.; W.O. 1,604 ft.
John Watkins' No. 1 Cunningham (was J. R. Lockhart's), 285 ft. S, 285 ft. W, NE cor., Sec. 11-5-16 .. Cmtd. 12½-in. 42 ft; S.D. 110 ft.

LAFAYETTE COUNTY

McIver et al's No. 1 Hottle, NW cor. NE, Sec. 1-20-6 ..... Began drlg. Nov. 8; S.D. 21 ft.
Smitherman & McDonald's No. 1 Reed, 200 ft. N, 200 ft. W, SE cor. NW NW, Sec. 16-15-22 ..... Arranging D.S. test 1,186-92 ft.

LITTLE RIVER COUNTY

Roberts Oil Co.'s No. 1 H. J. Russell, 330 ft. E, 330 ft. S, NW cor., Sec. 25-12-29.....Location.
G. R. Stevens et al's No. 1 Greason (was A. L. Buck's), NW NW, Sec. 25-12-32.....Arranging D.S. test 2,914 ft.

LOGAN COUNTY

J. H. Flowers' No. 1 J. H. White, Sec. 13-6-26.....S.D; W.O. 3,610 ft.

MADISON COUNTY
(Cable tools)

J. W. Baxter's No. 2 Hallin, C, Sec. 17-16-25.....T.A. 405 ft.
J. W. Baxter's No. 3 Hallin, NE SW, Sec. 1-17-26.....S.D. 50 ft.

MILLER COUNTY

Bullock Oil Co.'s No. 1 Hervey, SE NE, Sec. 33-14-26....Cored at 2,815 ft.
East Texas O. & G. Co.'s No. 1 Harvey, 500 ft. E, 300 ft. S, NW cor., Sec. 2-15-26.....Set full string 4½-in. 2,957 ft; S. W. 2,961 ft.; arranging cores.
E. & F. Oil Co.'s No. 1 E. L. Beck, 200 ft. S, 200 ft. E, NW cor. SW, Sec. 36-15-26.....S.D. litigation; T.D. 2,968 ft.
Fitzwater et al's No. 1 Beck, 200 ft. N, 200 ft. W, SE cor. SW SE, Sec. 33-15-26.....Began drlg. Oct. 13; cmtd. 10-in. 93 ft.
Gusher Bend Oil Co.'s No. 1 Adams, 120 ft. S, 800 ft. W, NE cor. NW, Sec. 26-14-26.....Drlg. 1,520 ft.
Lenz et al's No. 2 Johnson, SE cor., Sec. 24-16-16.....Drlg. 4,490 ft.
Lenz et al's No. 3 Johnson, 250 ft. W, 150 ft. N, SE cor. NE NW, Sec. 24-15-26.....S.D. 2,850 ft.
J. D. McRae's No. 1 Smith, 150 ft. N, 150 ft. W, SE cor., Sec. 28-15-26.....Derrick.
Salzer & McRae's No. 1 Rose, SW cor. NE SW, Sec. 9-16-26.....S.D. fuel 475 ft.

OUACHITA COUNTY

Belmont et al's No. 1 Buck, SE cor. SE SW, Sec. 16-15-17.....S.D. 2,907 ft.
Copenhaven et al's No. 1 Elliott, Sec. 11-15-17.....D.S. stuck; T.D. 2,114 ft.

PIKE COUNTY

E. R. Henderson's No. 1 Tilyou, 660 ft. W, 500 ft. S, NE cor. NE SE, Sec. 26-8-14.....Coring 2,110 ft.
E. R. Henderson's No. 1 J. L. Lee, 400 ft. S, 350 ft. E, NW cor. SW SE, Sec. 31-8-24.....Derrick.

POPE COUNTY

Ark.-La. P. L. Co.'s No. 2 McFaddin, 685 ft. N, 485 ft. W, SE cor. NE SW, Sec. 15-9-21.....Drlg. hard sand 3,461 ft.

SCOTT COUNTY

Ark. Valley Gas Co.'s No. 1 Turner, C SE, Sec. 27-5-30..Location.
Heavener O. & G. Co.'s No. 1 Riser, Sec. 36-4-26.....Reaming 1,405 ft; T.D. 1,536 ft.
Waldron O. & G. Co.'s No. 1 White, NE cor. SW NW, Sec. 17-3n-29.....Began drlg. Jan. 11; drlg. 775 ft.

UNION COUNTY

Chapman & Wilson's No. 1 A. H. Hadley, 330 ft. N, 330 ft. E, SW cor. NE SW, Sec. 3-18-13.....Top Meakin 2,550 ft; coring 2,-630 ft.
S. B. Hickman's No. 1 Hogg, 330 ft. S, 150 ft. E, NW cor. SE SE, Sec. 35-16-17.....Fishing 800 ft; D.S; T.D. 3,070 ft.
Marine Oil Co.'s No. 3-B Thompson, 330 ft. S, 330 ft. E, NW cor. SE NE, Sec. 10-18-13.....2,500 ft. oil; setting tubing; T.D. 3,557 ft.
Marine Oil Co.'s No. 1-F Winn, Sec. 10-18-13.....Hole full fluid 50% S.W; waiting on air; T.D. 3,604 ft.
Oil Field Corp.'s No. 1 Simmons, 330 ft. S, 330 ft. E, NWcor., Sec. 13-18-13.....D.S. test 3,556-3,602 ft; S.W; T.A. 3,602 ft.

VAN BUREN COUNTY

Glenn Kohle et al's No. 1 Scalan, 200 ft. S, 200 ft. W, NE cor. SE NW, Sec. 5-19-13.....S.D. 50 ft.

WASHINGTON COUNTY
(Cable tools)

Delbert & Graves' No. 1 Cunningham, Sec. 14-15-32.....S.D; W.O. 602 ft.
C. H. Willoughby's No. 1 Jones, Sec. 34-16-30.....S.D. 1,697 ft.
H. H. Taylor et al's No. 1 Runny, C NE SW, Sec. 1-13-29..S.D. 1,700 ft.

YELL COUNTY
(Cable tools)

Tegmeier & Luckett's No. 1 Falcon, Sec. 36-7-21.....S.D. 5,710 ft.

EAST TEXAS
BOWIE COUNTY

Maud-Redwater Oil Co.'s No. 1 Merritt, 175 ft. N, 175 ft. E, SE cor. G. W. Hardige 100-ac. tr. on Floyd Merritt tr. in Y. S. McKinney Sur.....S.D. 632 ft.
Lee Timberlake et al's No. 2 Tidwell, 2,510 ft. N, 655 ft. W, SE cor. T. M. Rice Sur.....S.D. 720 ft.

CAMP COUNTY

McDonald Bros.' No. 1 Tillery, 150 ft. E, 450 ft. S, NW cor. 127-ac. tr., in J. H. Murphy Sur.....Cored sand 3,510-20 ft; drlg. 3,-600 ft.

CASS COUNTY

Wesley Morse et al's No. 1 Henderson, 800 ft. E, 1,100 ft. S, NW cor. C. E. Bailey Sur.....Derrick.
Olds & Smith's No. 1 Atheny, 3,056 ft. W-E line, 856 ft. S-N line, J. C. Byers Sur.....Drlg. 1,000 ft.
John C. Rogers' No. 1 I. E. Lanier, 573 ft. N, 879 ft. W, SE cor. Lanier 86 ac. in K. E. Welborn Sur.....Cored limey shale 2,270-75 ft; S.D.
John C. Rogers et al's No. 1 W. Q. Henderson, 3,100 ft. S, 3,100 ft. E, NW cor., Wm. Davis Sur.....S.D. 360 ft.

HARRISON COUNTY

Corona Pet. Co.'s No. 1 A. J. Bohler, C, Bohler 140 ac. in SW cor. S. F. Sparks Sur.....Derrick.
S. D. Hunter's No. 2 Dougherty, W. D. Burris Sur.....Rig up.

MARION COUNTY

Geo. Hindman et al's No. 1 F. V. Lindsey, 2,500 ft. S, most northerly N line, 3,555 ft. E most easterly W line, Alexander Albright Sur.....Derrick.
Hindeman & Rhondo's No. 1 McGaughey, 1,547 ft. W, most northerly SW cor., 1,638 ft. N, most northerly S line, W. J. Wills Sur.....Location.
P. E. Hussey's No. 1 A. A. Trammell, Chas. Lockhart Sur.....Fishing 10 joints D.S.; T.D. 1,-884 ft.

RED RIVER COUNTY

D. M. Buffington's No. 1 Hossler, E. Hughhart Sur. ....Drlg. 2,795 ft.
Johnson Pet. Co.'s No. 2 Randolph, Edw. Dean Sur. ....Swedging 3 joints collapsed 8-in; arranging to cmt. 6⅝-in. and packer 2,812 ft.

SHELBY COUNTY

Chapparell Oil Co.'s No. 2 Holt, Matthew Moore Sur. ....S.D. 3,107 ft.

CENTRAL WEST FIELDS

(Continued from Page 54)

tions since the last review. W. C. McBride, Inc. drilled No. 3 well, 600 feet from the north line and 225 feet from the west line of the John Magill farm, SE Section 3, Montgomery Township, Crawford County, which showed an initial of 18 bbls. from 970 feet. Pinkstaff and others drilled a dry hole on the John Ferrell farm, Section 1, Prairie Township, same county.

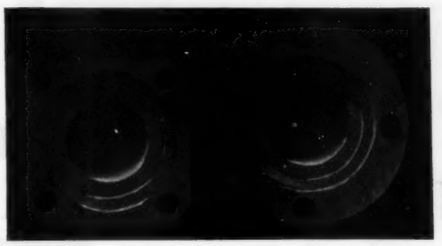
Frank A. Mohr and others have abandoned their Nos. 1 and 2 on the Anna Molte, Lots 1 and 9, town of DuPo. in Section 21, Sugar Loaf Township, St. Clair County.

Northern Illinois Oil & Gas Co. is drilling a wildcat far away from known production, on the Mrs. Elizabeth Taylor farm, around 8 miles southwest of Belvedere, the county seat of Boone County, and southeast of Rockford.

MISSOURI

The Huffman Brothers Construction Co.'s test on its own property in St. Ferdinand, Survey 1, St. Louis County, Missouri, came in a dry hole at a total depth of 909 feet. None of the wells so far drilled in that area has shown any indications of making either an oil or gas producer.

W. B. Simpson has abandoned Nos 1 and 2 on Arsenal Island, in the Mississippi River, near St. Louis.

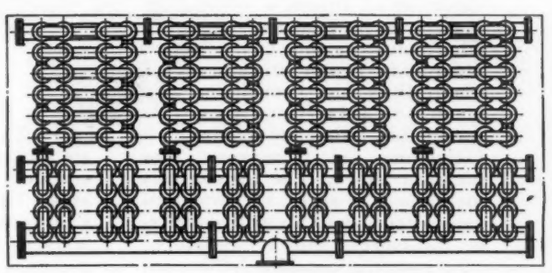


This side-by-side end view shows the complete change.

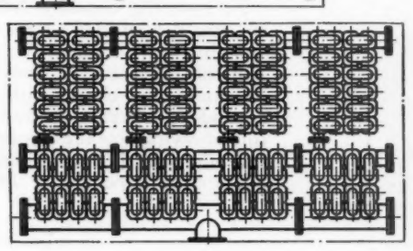
this Small Change permits a *Big Space Saving* in coil construction

IT doesn't look like much of a change, does it? Well, it's not much of a change; merely an alteration in the *exterior* of the flange (the stuffing box, retainer ring, size and shape of gasket remain the same.) But what a saving in space it permits! You can see it for yourself by comparing the end-views of condenser coils shown here. Simplex SQUARE FLANGE Condenser Piping has all the advantages of the original Round Flange Piping, plus this new space-saving design which enables you to save up to 50% or even more space, depending on design of coil.

Full details of this new piping are contained in our catalog "Simplex Square Flange Condenser Piping," a copy of which will be sent you FREE on request.



(Above) End View of Condenser Coil made with old style *round-flange* piping.



(Right) End View of same Condenser Coil made with new style *square-flange* piping.

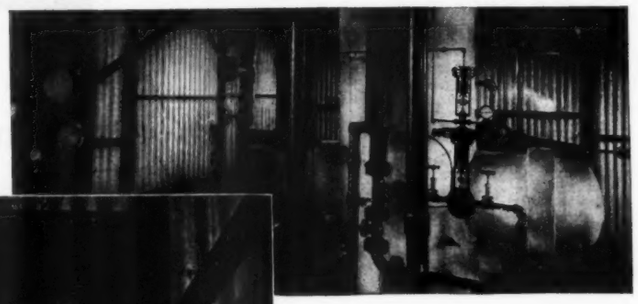
AMERICAN
CAST IRON PIPE CO.
BIRMINGHAM, ALABAMA

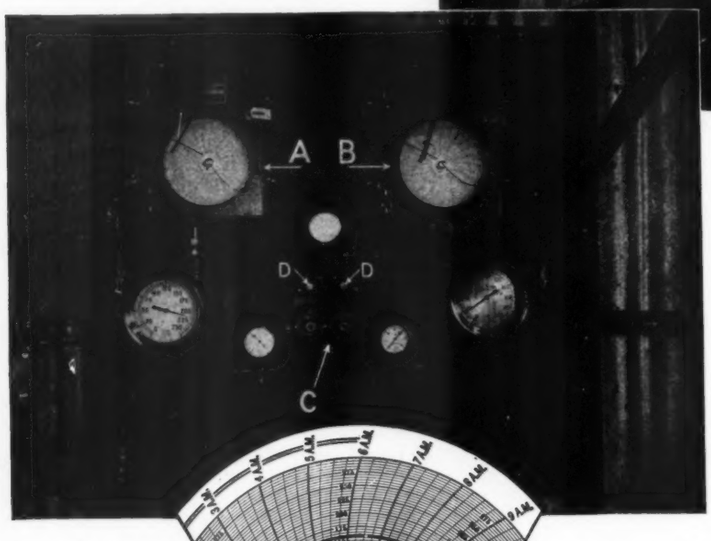
Branches: New York City, Chicago, Minneapolis, Cleveland, Kansas City, Dallas, Detroit, San Francisco, Los Angeles, Seattle.

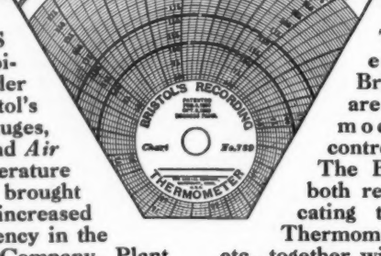
312 R

ANOTHER PRODUCTION PROBLEM

SOLVED THROUGH USE OF BRISTOL'S INSTRUMENT EQUIPMENT







CONTINUOUS control of stabilizer operation under direction of Bristol's Recording Gauges, Thermometers and *Air Operated* Temperature Controllers has brought about greatly increased production efficiency in the Oklahoma Oil Company Plant pictured above. The instruments mentioned operate to automatically record and control stabilizer pressures and temperatures . . . assuring constant adherence to pre-determined operating schedules. Evidence of the close control obtained is seen in the thermometer chart with record reproduced here . . . one record line showing top temperature and the other the bottom temperature cycle over a period of 24 hours.

This is a typical example of how Bristol's Instruments are being adapted to modern production control requirements. The Bristol line offers both recording and indicating types of Gauges, Thermometers, Pyrometers, etc., together with a complete assortment of electrical or air operated Temperature or Pressure Controllers and Controller Valves.

Detailed information regarding any type of instrument in which you are interested will be sent immediately on request. Write direct to The BRISTOL COMPANY, WATERBURY, CONN., or to Bristol's Branch Office nearest you.

A—Model 40 Recording Pressure Gauge, 8", 24-Hour Chart, No. 2172; range 0 to 250 lbs., for recording stabilizer pressures.

B—Model 340 Recording Thermometer, two pens; 8" 24-Hour Chart, No. 789, range 40 to 300° F., installed to record stabilizer top and bottom temperatures.

C—Double Service Distance Type Air Operated Temperature *Controller;* series No. 152, reverse and direct acting, scales 150 to 250° F., and 75 to 175° F., installed to automatically maintain correct stabilizer temperatures.

DD—Controller Air Valve; which, owing to simplicity of design, is conveniently accessible for cleaning, inspection or replacement. To remove, unscrew and lift out valve with spring attached. The valve seat is then exposed, almost flush with case front. To replace, simply screw into place again—no further attention or adjustment is required.

FIELD ENGINEERING SERVICE

In adapting Bristol's Instruments to the particular requirements of your plant, The Bristol Company maintains a very complete Field Engineering Service. The men comprising this Field Engineering group are technically trained, and thoroughly schooled in the construction, design and application of Bristol instruments. They are prepared to consult with your engineers; to assist in any needed survey work, and aid in every possible way the development of instrument possibilities. This service is offered entirely free of obligation.

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BRISTOL'S
SINCE 1889
Instruments *for* Indicating Recording Controlling

BRANCH OFFICES:
Denver
Birmingham
Chicago
Detroit
Philadelphia

WEST TEXAS FIELDS

(Continued from Page 50)

back to 2,398 feet, shot with 7 quarts from 2,384-97 feet, initial production 35 bbls. Sanger Oil Co.'s No. 1 Osborn, temporarily abandoned, location.

Val Verde County

Phantom Oil Co.'s No. 1 Ingram temporarily abandoned, total depth 3,055 feet. Val Vert Oil Corp.'s No. 1 Bassett, temporarily abandoned, total depth 4,009 feet.

WEST TEXAS PRODUCTION
Week Ending January 31

County—	No. wells	Bbls.
Andrews	2	170
Crane	373	21,821
Crockett	49	1,646
Ector	76	6,505
Fisher	9	1,100
Garza		29
Howard-Glasscock	526	27,322
Irion	7	81
Jones	74	1,135
Loving	36	3,052
Mitchell	150	1,989
Pecos	526	94,549
Regan	254	29,733
Runnels	4	176
Scurry	5	7
Taylor	3	135
Upton	256	6,499
Ward	51	3,115
Winkler	593	51,514
Total production this week		250,578
Total production last week		242,857
Increase		7,721

RUNS THROUGH TRUNK LINES

Company, size and location—	Bbls.
Atlantic, 10-inch, Houston	31,627
Gulf, 10-inch, Ranger	24,827
Humble, 2-8-inch, San Angelo	24,017
Humble, 10 and 12-inch, Comyn	33,522
Illinois, 2-8-inch, Del Rio	36,241
Magnolia, 8-inch, De Leon	19,250
Pasotex, 8-inch, El Paso	18,136
Shell, 10-inch, Healdton	39,345
Shell, 10-inch, Houston	30,173
Texas, 12-inch, Houston	28,712
Total	285,850

RUNS TO WEST TEXAS REFINERIES

Big Spring Ref. Co., Big Spring	1,180
Burford Ref. Co., Pecos	3,631
Cosden Ref. Co., Big Spring	8,888
Col-Tex Ref. Co., Colorado	4,976
Great Western Ref. Co., Big Spring	2,806
Tonkawa Ref. Co., Pyote	873
Wickett Ref. Co., Wickett	268
Total	22,622

TANK CAR SHIPMENTS

Big Lake from Texon	3,900
Fox and Thorsen from Mertzon	81
Thomas-Brann from Grant City	None
Santa Fe from Hurdle	54
Southern C. O. P. Co. from Wickett	13,218
Total	16,353
Total daily average distribution	324,825
Total daily average production (including Lea County, N. Mex.)	284,967
Daily average from storage	39,879

NORTH CENTRAL TEXAS PRODUCTION
Week Ending January 31

Panhandle district—	Bbls.
Carson County	4,195
Hutchinson County	9,163
Gray County	45,425
Moore County	359
Potter County	0
Wheeler County	349
Total production this week	59,491
Total production last week	58,405
Increase	1,086
Wichita Falls district—	
Archer County	12,090
Baylor County	920
Clay County	599
Cooke County	1,994
Foard County	96
Jack County	1,211
Haskell County	21
Montague County	4,140
Throckmorton County	371
Wilbarger County	13,101
Wichita County	20,244
Young County	11,154
Total production this week	65,941
Total production last week	66,070
Increase	129
Ranger district—	
Brown County	4,116
Callahan County	2,155
Comanche County	931
Coleman County	1,649
Palo Pinto County	411
Eastland County	3,394
Shackelford County	4,225
Stephens County	4,625
Total production this week	21,506
Total production last week	21,173
Increase	333

COMPLETIONS IN PANHANDLE DISTRICT

Carson County

Magnolia Petroleum Co.'s No. 1 Burnett, top pay 2,986-90 feet, plugged back to 3,128 feet, initial production 30 bbls., total depth 3,159 feet. North American Oil & Gas Co.'s No. 1 Polling, 28,000,000 feet of gas from 2,145-2,536 feet, total depth 2,547 feet. Plains Holding Co.'s No. 1 Kolka, junked and abandoned, total depth 2,500 feet.

Gray County

Kewanee Oil & Gas Co.'s No. 1-C Morse, shot 190 quarts 2,650-99 feet, initial production 219 bbls. in 20 hours, total depth 2,700 feet. Lyon and others' No. 1-A Morse, dry and abandoned, total depth 2,852 feet. Cockrell and McIlroy Oil Co.'s No. 8 Castleberry, shot 250 quarts 3,180-3,280 feet, initial production 148 bbls., total depth 3,286 feet. British American Oil Producing Co. and Shell Petroleum Corp.'s No. 1 Smith, abandoned, location. Magnolia Petroleum Co.'s No. 2 Sailor, abandoned, location. Midgray Oil Co.'s No. 1 McCullough, total depth 3,330 feet, plugged back to 3,222 feet, shot 250 quarts 3,150-3,220 feet, initial production 20 bbls. oil and 20 bbls. of water. Skelly Oil Co.'s No. 1 Heitholt, top pay 2,995 feet, initial production estimated 6,000 bbls. tested 36,000,000 feet of gas, total depth 3,000 feet.

Moore County

Delmar Oil Co.'s No. 1-A Jones, total depth 3,460 feet, plugged back to 3,412 feet, shot 80 quarts from 3,370-95 feet, initial production 200 bbls. Shamrock Oil & Gas Co.'s No. 1 Sullivan, total depth 3,595 feet, plugged back to 3 383 feet, initial production 2,500,000 feet of gas from 2,824-3,380 feet.

Wheeler County

Woodley and others' No. 1 Slass and Admire, total depth 2,250 feet, plugged back to 2,208 feet, initial production 25 bbls. and 5 bbls. of water, top pay 2,192 feet.

Young County

B. C. Banner's No. 1 Belknap Cattle Co., dry and abandoned, total depth 715 feet. B. C. Banner's No. 1 Jeffrey, dry and abandoned, total depth 900 feet. Brazelton and others' No. 1 Belknap Cattle Co., dry and abandoned, total depth 738 feet. Butler and others' No. 6 Finch estate, top pay 616 feet, initial production 125 bbls., total depth 627 feet. W. H. Clanda's No. 1 Bagley, dry and abandoned, total depth 610 feet. J. P. Coleman's No. 1 Brooks, dry and abandoned, total depth 487 feet. G. W. Cooper's No. 1 Wilborn, dry and abandoned, total depth 1,406 feet. Deep Oil Development Co.'s No. 1 Furr, Boot, dry and abandoned, total depth 852 feet. F.H.E. Oil Co. and others' No. 4-C Finch estate, junked and abandoned, total depth 395 feet. W. R. Fullerton's No. 1 Belknap Cattle Co., top pay 536 feet, initial production 5 bbls., total depth 567 feet. W. F. Hamilton's No. 5 Finch Estate, top pay 652 feet, initial production 30 bbls., total depth 669 feet. W. F. Hamilton's No. 6 Finch estate, top pay 659 feet, initial production 150 bbls., total depth 669 feet. Julian & Co. and Stripling's No. 12 Larimore, top pay 690 feet, initial production 225 bbls., total depth 713 feet. Kliner & Rigg's No. 4 Larimore, dry and abandoned, total depth 754 feet. Maer and Martin's No. 1 Sanford, dry and abandoned, total depth 1,001 feet. J. J. Moran's No. 3 Howard, top pay 920 feet; initial production 20 bbls., total depth 925 feet. Putman Oil Co.'s No. 1 Guthrie estate, dry and abandoned, total depth 712 feet. E. R. Rigg's No. 5 Kirkland, top pay 723 feet, shot 7 quarts 723-33 feet, initial production 10 bbls., total depth 733 feet. E. R. Rigg's No. 7 Kirkland, top pay 743 feet, initial production 25 bbls., total depth 750½ feet. Seitz, Comegy and Seitz' No. 1-B Finch estate, top pay 671 feet, initial production 50 bbls., total depth 677 feet. Seitz and Comegy and Seitz' No. 2-B Finch estate, top pay 671 feet, total depth 730 feet, plugged back to 617 feet, initial production 12 bbls. W. R. Stafford's No. 1 Hamm, dry and abandoned, total depth 528 feet. Stastny and others' No. 1 Eichelberger, dry and abandoned, total depth 907 feet. Nash and Windfohr's No. 2 Graham, top pay 2,661 feet, initial production 110 bbls., total depth 2,675 feet.

Wilbarger County

The Texas Company's No. 389 Waggoner, dry and abandoned, total depth 2,201 feet. The Texas Company's No. 391

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Waggoner, oil sand 1,049-52 feet, estimated 4 bbls. oil, total depth 1,052 feet.

COMPLETIONS IN RANGER DISTRICT

Coleman County

Arcadia Refining Co.'s No. 1 Burkett, temporarily abandoned location.

Erath County

Dorris and others' No. 1 Whittenton temporarily abandoned, total depth 3,448 feet. Goodwin and others' No. 1 Canfield heirs, temporarily abandoned, total depth 3,231 feet.

Palo Pinto County

Lindsey and others' No. 3 Robinson, temporarily abandoned, total depth 1,810 feet.

COMPLETIONS IN NORTH CENTRAL TEXAS

Archer County

Shappell Oil Co.'s No. 3-E Wallace, top pay 1,784 feet, initial production 15 bbls., total depth 1,794 feet. Same company's No. 5-E Wallace, dry and abandoned, total depth 1,839 feet. Steele Drilling Co.'s No. 1 Mangoll, temporarily abandoned location. E. J. Stump's No. 1 Chiles, dry and abandoned, total depth 1,780 feet. E. J. Stump's No. 1-B Wilson, dry and abandoned, total depth 1,702 feet. L. T. Burn's No. 1 Harrison, dry and abandoned, total depth 1,254. Stanolind Oil & Gas Co.'s No. 3 Lanster, total depth 1,280 feet, plugged back to 1,276 feet, oil sand 1,270-75 feet, initial production 15 bbls. on pump. W. B. Hamilton's No. 1 Ward, dry and abandoned, total depth 1,044 feet. F. P. Hyne's No. 2 Richardson, oil sand 1,163½-73½ feet, initial production 100 bbls., total depth 1,173½ feet. Kimmell and others' No. 1 Snider, dry and abandoned, total depth 800 feet. Madden and Hunt's No. 1 Richardson, dry and abandoned, total depth 1,194 feet. Steele Drilling Co.'s No. 1 Doty, temporarily abandoned location. Same company's No. 1 Montgomery, temporarily abandoned location. Young and others' No. 1 Anderson, temporarily abandoned, location.

Jack County

Bryson Oil & Gas Co.'s No. 1-B Loving, temporarily abandoned, total depth 4,310 feet.

Grayson County

Duncan and White's No. 1 Lineville, dry and abandoned, total depth 1,165 feet.

Parker County

Waters Drilling Co.'s No. 2 Davis, gas sand 2,230-36 feet, estimated 5,000,000 feet of gas, total depth 2,236 feet.

NOT MUCH TO LOOK AT BUT IT MADE HISTORY

The picture shows what is left of the famous Drake well, near Titusville, Pa. This well, which is not much to look at, now, but which made history, was drilled

in August 15, 1859, to a depth of 69 feet. The picture shows the original casing. Sitting beside it is H. W. Davidson of the Dawes, W. Va., office of the Pure Oil Co.

EAST CENTRAL TEXAS WILDCATS

(Continued from Page 69)

RED RIVER COUNTY

Buffington et al's No. 1 L. H. Moore, 160 ft. from S and 160 ft. from W of 100 acres, Daniel Cornelius Sur. ..... Shut down 1,630 ft.

Droppleman and Bunely's No. 1 J. W. Cunningham, 250 ft. E and 250 ft. S of 180-ac. tract, S. E. Shi Sur. ..... Coring 2,326 ft.

Everett & Allen's No. 1 E. Howison, 225 ft. S, 185 ft. W of 79-ac. tract, William Humphreys Sur. ..... Derrick.

Everett & Allen's No. 1 Bryan, 1,200 ft. SW of NE cor of Bryan 130 acres, P. Vaughn Sur. ..... Location.

RUSK COUNTY

Alford et al's No. 1 W. L. Thrash, 1,103 ft. from N and 420 ft. from E of SE cor. of B. Smith Sur. ..... Derrick.

Akin & Rayzor's No. 1 Claude Ashby, 1,580 ft. E along N line of Ashby 119-ac. from NW cor., 660 ft. S at right angle to N line, Juan Ximenes Sur. ..... Drlg. 2,954 ft. (rotary).

Anderson's No. 1 Frederick, 150 ft. E and 150 ft. S of 37.5-ac. tract, Juan Ximenes Sur. ..... Drlg. 2,707 ft.

Anderson & Co.'s No. 1 Frederick, 150 ft. out of S.W. cor. of 20-ac. lease out of 37.25-ac. lease ..... Drlg. 2,870 ft.

Anderson et al's No. 1 G. T. Moore, 600 ft. from E along S line of tract, Juan Ximenes Sur. ..... Derrick.

Anderson & Co.'s No. 1 Thompson, 150 ft. from N and 150 ft. from E. M. J. Prue Sur. ..... Moving in material.

Universal Oil & Gas Mining Co.'s No. 1 J. T. Brown 150 ft. from E and 150 ft. from S of N 36-ac. tract, M. J. Prue Sur. ..... Spudded and shut down.

Ball & Malone's No. 1 Bradford, 304 ft. W and 150 ft. N of excess strip off W side of Daisy Bradford 75-ac. lease ..... Drlg. 1,428 ft.

Bateman et al's No. 1 Lois Della Crim, 3,088 ft. W along N line of survey of NE cor. and 400 ft. S at right angles to N line of survey, E. G. Sevier Sur ..... Shut down 3,642 ft.; shut in; Pettit gas leaking through connection

H. W. Blum's No. 1 W. M. Jarnigan, 150 ft. from S, 150 ft. W of 17-ac. tract, J. C. Snow Sur. ..... Derrick (rotary).

Burgoyne et al's No. 1 J. A. Alexander, 693 ft. from E and 400 ft. from S, Thomas Jones Sur. ..... Base Pecan Gap 2,954 ft.; T. D. 3,608 ft.

Burton Drlg. Co.'s No. 1 Clark (Florey), 172 ft. E and 2,282 ft. S of Peter Holmes Sur. ..... Set 10-in. csg. 190 ft.

Consolidated Oil Co.'s No. 1 Camp, 150 ft. from S and 150 ft. W of 74.57-ac. tract, Juan Ximenes Sur. .... Base Pecan Gap 3,030 ft.; T. D. 3,603 ft.

Capp & Smith's No. 1 J. L. Cochrane, 150 ft. from E and 150 ft. from SE cor. of Cochrane tract, Jacob Roth Sur. ..... Fishing 1,200 ft.

Roy L. Carter's No. 1 Mayfield-Alford, 150 ft. N and 200 ft. W of most northern NW cor. of 105-ac. tract, Juan Ximenes Sur. ..... Derrick.

Cranfill and Germany's No. 1 A. P. Finney, 150 ft. from E and 150 ft. S of Finney 105-ac. tract, Juan Ximenes Sur. ..... Building derrick.

E. L. Chapman's No. 1 A. P. Finney, 150 ft. from W of E 20 acres of 102-ac. tract, Isaac G. Parkey Sur. .... Derrick.

Cordova Union Oil & Land Co.'s No. 1 C. O. Christian, 150 ft. N and 171 ft. W of Christian 36-ac. tract, Robert E. Winn Sur. ..... Building derrick.

Deep Rock Oil Co.'s No. 1 Mayfield-Alford, 150 ft. from W and 200 ft. of SE cor. of lease, Juan Ximenes Sur. ..... Testing; T. D. 3,635 ft.

George Demonstrend's No. 1 J. A. Birdwell, 150 ft. N and 150 ft. E of Birdwell east 73-ac. tract, M. J. Prue Sur. ..... Location.

Dan Dillon et al's No. 1 W. H. Frederick (Jake), 150 ft. from E and 150 ft. from S of 50-ac. tract, Juan Ximenes Sur. ..... Derrick.

East Texas Oil Co.'s No. 1 C. D. Ashby, 856 ft. N and 1,774 ft. from W of Ashby 119-ac. tract, Juan Ximenes Sur. ..... Shut down 430 ft.

Eliaz Drlg. Co.'s No. 1 W. M. Camp, 150 ft. N and 171 ft. from E of Camp 38-ac. tract, Juan Ximenes Sur. ..... Derrick.

Frank Foster's No. 1 Alford-Mayfield, 150 ft. N and 410 ft. from W of NE cor. of Ashby 45-ac. tract J. Ximenes Sur. ..... Preparing to drill plug; shut down 3,599 ft.

Federated Oil Co.'s No. 1 Mayfield-Alford, 150 ft. S, 1,221 ft. W of Laird 55-ac. tract, Isaac Ruddle Sur... Drlg. 1,750 ft.

Foster and Deep Rock's No. 2 Ashby, 150 ft. W and 45 ft. S of Aiken & Rayzor's No. 1 Ashby, Juan Ximenes Sur. ..... Location.

Foster et al's No. 1 Fisher, 200 ft. N and 200 ft. W of E 98-acre tract, John Ruddle Sur. ..... Moving in material.

Foster Oil Co.'s No. 2 Cook, 150 ft. from S and 150 ft. from W, Juan Ximenes Sur. ..... Rig up.

Goodman's No. 1 Oscar Jones, 250 ft. from W and 150 ft. from N of railroad, Brown Sur. ..... Fishing 3,630 ft.

Haynes Drilling Co.'s No. 1 J. T. Brown, 150 ft. from N and 150 ft. from E of J. T. Brown 76-ac. tract, M. J. Prue Sur. ..... Run tubing; shut down 3,672 ft.

Heard's No. 1 Peterson, located in Robert E. Wynn Sur., 150 ft. out of NW cor. of Peterson 50 acres .... Set 10-in. csg.; T. D. 175 ft.

Humble Oil & Ref. Co.'s No. 1 Ben Laird, 150 ft. N and 1,219 ft. W of Laird 100-ac. tract, Isaac Ruddle Sur. ..... Location.

Humble O. & R. Co.'s No. 2 L. D. Crim, 1,826 ft. N and 150 ft. S of Sevier Sur. in the L. G. Sevier Sur. ..... Building derrick.

Humble Oil & Ref. Co.'s No. 3 L. B. Crim, 2,438 ft. from E and 194 ft. S of Sevier Sur. ..... Building derrick.

Hunt's No. 2 Bradford, 1,320 ft. from E and 150 ft. from S of Blk. No. 12, Juan Ximenes Sur. ..... Drlg. 3,462 ft.; base Pecan Gap 3,023 ft.

Hunt's No. 2 Ashby, 150 ft. from N and 2,213 ft. from W of 119-ac. tract, Juan Ximenes Sur. ..... Drlg. 3,425 ft.

H. L. Hunt's No. 3 Ashby, 221 ft. N and 2,530 ft. W of 125-ac. tract, Juan Ximenes Sur. ..... Derrick.

H. L. Hunt, trustee's No. 1 Mayfield-Alford, 200 ft. N and 200 ft. W, Juan Ximenes Sur. ..... Building derrick.

E. M. Jones et al's No. 1 W. R. Crim, 150 ft. N and 150 ft. W of 50-ac. tract, Robert E. Winn Sur. ..... Drlg. 2,611 ft.; elev. 435 ft.

Knox et al's No. 1 M. A. Melton, 363 varas N, 140 varas W, Eliz Milton Sur. ..... Derrick.

La-Tex Oil Co.'s No. 1 Major Kennedy, 233 ft. W of survey and 166 ft. from S line of Kennedy 100-ac. tract, Daniel Clark Sur. ..... Rig up.

L. Lloyd Oil Corp. et al's No. 1 Nicey, 150 ft. S and 300 ft. W of 25-ac. tract (NW cor. of county), Thomas Obar Sur. ..... Drlg. 938 ft.

E. C. Laster et al's No. 1 B. B. Gray, 1,650 ft. N and 2,425 ft. E of B. B. Gray 228.25-ac. tract, McLain Sur. ..... Drlg. 190 ft.

E. C. Laster's No. 1 Daisy Bradford, 150 ft. from E and 150 ft. from S of Lot 14, Juan Ximenes Sur. .. Drlg. 3,455 ft.

Lide et al's No. 1 Calvin Young, 3,015 ft. E and 3,373 ft. S, M. J. Prue Sur. ..... Cored oil sand 3,677-88 ft.; will run csg.; T. D. 3,688 ft.

Luling Oil & Gas Co.'s No. 1 Bright Well (Porter), 150 ft. N and 150 ft. W of Robert Winn Sur. ..... Rig up.

Mass et al's No. 1 Matthews, 3,244 ft. from N, 4,356 ft from E, Dalines Cartimas Sur. ..... Shut down 2,338 ft.

Moss & Urschel's No. 1 Mayfield-Alford, 221 ft. S and 200 ft. W of 10-ac. lease, Juan Ximenes Sur. ..... Drlg. 400 ft.

A. A. Malone's No. 1 G. T. Moore, 150 ft. from E and 150 ft. from S, Juan Ximenes Sur. ..... Derrick.

W. Olvey's No. 1 Mrs. W. R. Crim, 150 ft. N and 150 ft. W of lease, Robert E. Winn Sur. ..... Shut down 2,240 ft. (rotary).

Pearl Oil Co.'s No. 1 D. W. Eaton, 975 ft. from most southerly S line of middle tract and 400 ft. from W line in Francisco Cordova Sur. ..... Derrick.

Rusk County Oil Co.'s No. 1 Robertson, 150 ft. N along W line of George Guthrie Sur. from SE cor. and 150 ft. W of E line of Robertson 20-ac. tract, R. H. Pinney Sur. ..... Fishing 1,201 ft.

George Page's No. 1 William Camp, 150 ft. from S and 650 ft. from W of 5-ac. tract, J. Ximenes Sur. ..... Rigged up and shut down.

Roberts Oil Corp.'s No. 1 C. D. Ashby, 150 ft. N and 1,580 ft. W of Ashby 119-ac. tract, Juan Ximenes Sur. ..... Drlg. oil sand 3,598-3,616 ft.; shut down 3,616 ft.

Rusco Oil Co.'s No. 1 Daisy Bradford, 150 ft. from E and 330 ft. from W, Lot 13, Juan Ximenes Sur. .. Swabbed 80 bbls. in 3 days; shut down 3,626 ft.

Nat Saddler's No. 1 Ed Sparks, 350 ft. from E and 150 ft. from S of survey, L. C. Rugg Sur. ..... Drlg. 500 ft.

B. J. Shaw's No. 1 C. D. Ashby, 367 ft. N and 1,762 ft. W of 119-ac. tract, Juan Ximenes Sur. ..... Shut down 3,611 ft.; top oil sand, waiting on csg.

E. R. Tennant's No. 1 Daisy Bradford, 150 ft. E and 400 ft. S of NE cor. of Ashby 38-ac. tract, Juan Ximenes Sur. ..... Drlg. 1,400 ft.

United Prod. Oil Co.'s No. 1 Mayfield-Alford, 150 ft. from S and 2,233 ft. from W of 105-ac. tract, Juan Ximenes Sur. ..... Drlg. 2,739 ft.; top Pecan Gap 2,581 ft.

Warner-Quinlan's No. 1 Camp, 197 ft. from N and 271 ft. from W of Mrs. C. Long 3-ac. lease, Juan Ximenes Sur. ..... Derrick.

SMITH COUNTY

Thayer & Rogers' No. 1 Willingham, 150 ft. N and W of 14.5-ac. tract, Jacob Hernin Sur. ..... Shut down 2,100 ft.

Winona O. & G. Co.'s No. 1 Freeman, 150 ft. from S, W of 89-ac. tract in A. J. Legrone Sur., 4 miles SE of Winona ..... Shut down 3,681 ft.

VAN ZANDT COUNTY

Burton Drlg. Co.'s No. 1 Flores, 2,250 ft. from N and 150 ft. from W of SE cor. in Peter Holmes Sur. .... Location.

Cranfill & Germany's No. 1 Swain, 137 ft. N and 50 ft. from W of excess strip on W side of O. L. and L. L. Swain farm ..... Shut down 14 ft.

T. Daniels' No. 1 Fannie Cumbine, 185 ft. S and 175 ft. E of NW cor. 156-ac. tract, John Wright Sur. ..... Temporarily abnd.

Dennis Oil Co.'s No. 1 C. W. Morris, 100 ft. from N and 300 ft. from E lines of Morris 160-ac. tract in C. L. Morris Sur., 5 miles SE of Ben Wheeler ..... Temporarily abnd.

J. C. Fare's No. 1 P. S. Hand, C of Hand's 50-ac. tract, William Shuman Sur. ..... Shut down 5,080 ft.

H. Helms et al's No. 1 Bogue, 647 ft. W and 155 ft. S of SE cor. of J. M. Brown 70-ac. in Marshall University Sur., SE of Van ..... Shut down 2,840 ft.

Humble Oil & Ref. Co.'s No. 1 L. A. Dowdle, 1,027 ft. N of S line and 150 ft. E of W line, William Daniel Sur. ..... Temp. abnd. 2,987 ft.

Imperator Oil Co.'s No. 2 G. W. Carter, 175 ft. from S and 35 ft. from W of G. W. Carter 171-ac. tract, William Daniel Sur. ..... Shut down.

Kelly Oil & Gas Co.'s No. 1 Lemsford, center of Lemsford tract, John Conner Sur. ..... Shut down 2,300 ft.

Neil McMehory's No. 1 R. V. Murphy, 150 ft. from N and 150 ft. W of survey, H. Bailey Sur. ..... Shut down 263 ft.
Pure Oil Co.'s No. 3 R. A. Howell, 225 ft. N and E of SW cor., Mund Gross Sur. ..... Drlg. plug 2,709 ft.
Pure Oil Co.'s No. 2 A. G. Tunnell, 250 ft. N of S line and 200 ft. W of E line, John Walling Sur. ..... T. D. 2,942 ft.; testing; shut in.
Pure Oil Co.'s No. 1 Davis, 127 ft. from S and 200 ft. from W of 139-ac. tract, Nacogdoches County School Land ..... Derrick standing.
Pure Oil Co.'s No. 2 Mayo, 200 ft. from S and 835 ft. from E of lease, J. Prado Sur. ..... Drlg. 1,717 ft.
Pure Oil Co.'s No. 4 W. F. Swain, 250 ft. S of N line and 200 ft. W of E line of lease, Mund Gross Sur. ..... Derrick.
Pure Oil Co.'s No. 3 O. L. Swain, 250 ft. S of N line and 250 ft. W of E line, John Walling Sur. ..... Drlg. 806 ft.
Pure Oil Co.'s No. 8 A. D. Clark, 150 ft. from E of W line and 200 ft. N of S line of lease, John Walling Sur. ..... Drlg. 2,382 ft.
Pure Oil Co.'s No. 2 R. L. Wells and A. T. Tunnell, 744 ft. E of W line and 250 ft. N of S line of lease in H. V. Moore Sur. ..... Drlg. 2,010 ft.
Pure Oil Co.'s No. 2 J. D. Miller, 250 ft. N of S line and 250 ft. E of W line of lease in John Walling Sur. ..... Derrick.
Pure Oil Co.'s No. 3 R. H. Peters, 250 ft. E of W line and 250 ft. N of S line of lease in Nacogdoches County School Land Sur. ..... Running 7-in. csg. 2,848 ft.
Pure Oil Co.'s No. 2 L. A. Smith, 632 ft. N of S line and 250 ft. E of W line of lease, John Walling Sur. ..... Drlg. 346 ft.
Pure Oil Co.'s No. 3 F. B. Smith, 250 ft. S and 200 ft. W of SE cor. of Ella York 39.6-ac. tract, John Walling Sur. ..... Drlg. 816 ft.
Pure Oil Co.'s No. 1 M. R. Blake, 225 ft. W of E line and 200 ft. S of N line of lease in Schmitz Sur. .... Drlg. 2,189 ft.
Pure Oil Co.'s No. 3 C. C. Stewart, 225 ft. N and 225 ft. W of most easterly SE cor. of lease, A. McPhail Sur ..... Drlg. 2,325 ft.
Roy Stumpff's No. 1 Riggs, 169 ft. from E and 155 ft. from S of 3-ac. tract, William Daniel Sur. ..... Derrick (rotary).
The Texas Company's No. 5 R. A. Tunnell, 495 ft. S of N line and 200 ft. E of most westerly W line, John Walling Sur. ..... Drlg. 2,720 ft.
Van Oil Association's No. 1 Tankersley, 200 ft. from E and 1,000 ft. from S of farm, L. Landers Sur. ..... Shut down 1,028 ft.
Vitek Oil Co.'s No. 1 Smith, 150 ft. S and 15 ft. from W of L. A. Smith 40-ac. farm in John Walling Sur.... Derrick.
Whitmore Oil & Gas Co.'s No. 1 R. W. Beggs, 300 ft. from S and 600 ft. from W, Raquet Sur. ..... Drlg. 1,368 ft.
Wilson et al's No. 1 Stribling, 1,563 ft. W of E line and 800 ft. S of N line of M. B. Fisher 172-ac. in Phillips Mason Sur. ..... Drlg. 1,580 ft.

WOOD COUNTY

Loche & Clark's No. 1 A. C. Pick, 165 ft. S of NE cor. G. C. Reeves 25-ac. tract, Daniel Fuller Sur. .... Shut down 997 ft.

WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 50)

Taylor-Link Oil Co.'s No. 1 Mary Bullock et al, 330 ft. from N and E of Sec. 41, T.C. Sur. ..... Shut down 2,300 ft.

CULBERSON COUNTY

Cranfill Bros. and Sholts' No. 1 Seay, 2,310 ft. from S and W, Sec. 45, Blk. 60, Public School Land ..... Set 10-in. casing 245 ft.
Grisham & Hunter's No. 2 Garren, 2,475 ft. from S and 1,566 ft. from E, Sec. 20, Blk. 89, Public School Land.. Shut down 1,520 ft.; show oil 1,400-15 ft.
Kornrumpf et al's No. 1 Garren, 330 ft. S and W, Sec. 15, Blk. 79, Public School Land ..... Drlg. 1,225 ft.

DAWSON COUNTY

Albaugh et al's No. 1 Robinson, C NW, Sec. 46, Blk. M, E.L.&R.R. ..... Spudded 20 ft. and shut down.

ECTOR COUNTY

Galt, Brown & Penn's No. 1 Cowden, C SE Sec. 12, Blk. 44, Twp. 2s, T.&P. Sur. ..... Spudding 50 ft.
H. F. Wurtz' No. 1 E. A. Ibbetson et al, 330 ft. from N and E lines of NW, Sec. 16, Blk. 46, Twp. 3s, G. M. M.Br.&A. Sur. ..... Shut down 3,280 ft.
Skelly Oil Co. and Republic Prod. Co.'s No. 1 McKenzie, 990 ft. from S line and 330 ft. from E line of Sec. 28, Blk. 45, Twp. 2s, T.&P. Sur. ..... Shut down 3,750 ft.; flowed 110 bbls. on July 12; shut in for storage.
Southern Crude Oil Pur. Co.'s No. 2 Crowder & Co., 660 ft. from S and W of NE cor., Sec. 34, Blk. 43, Twp. 1n, T.&P. Sur. ..... Drlg. 2,470 ft.

EL PASO COUNTY

Lane-The Texas Company's No. 1 Malone, 2,110 ft. from SW and NW of Sec. 46, J. M. Day Sur. ..... Shut down 3,089 ft.
Tri-State Oil Co.'s No. 1 Bobadella, 330 ft. from S and E of Sur. No. 254, S.F. No. 7,247 ..... Running 18-in. casing 125 ft.

FISHER COUNTY

Condor Pet. Co.'s No. 1 Wilson, 330 ft. from N and 1,200 ft. from W, Sec. 6, W. E. Richardson Sur. ..... Total depth 3,188 ft.; running 5 3/16-in. casing.
Cranfill & Reynolds' No. 2 Flannigan, 300 ft. from S and E of W half Sec. 200, B.B.B.&C. Sur. ..... Top pay 3,188 ft.; 2,309 ft. oil in hole.
Cranfill & Reynolds' No. 3 Willingham, 330 ft. from S and E of Sec. 307, B.B.B.&C. Sur. ..... Shut down 3,090 ft.
Roeser & Pendleton's No. 1 Littleton, 1,600 ft. from S and 660 ft. from W of SE, Sec. 191, B.B.B.&C. Sur.... Drlg. 2,535 ft.
Roeser & Pendleton's No. 1 Grimble (Russell), 660 ft. from S and 440 ft. from W of NW Sec. 210, B.B.B. &C. Sur. ..... Drlg. 750 ft.
The Texas Company's No. 2-A Stephens, 330 ft. from S and E, Sec. 79, Blk. 1, H.&T.C. Sur. ..... Total depth 3,261 ft.; swabbed 22½ bbls. on 24-hr. test.

GAINES COUNTY

Texas Consolidated Oil Co. et al's No. 1 Jones, 2,310 ft. from NE, Sec. 4, Blk. A-8, P.S.L. Sur. ..... Drlg. 1,060 ft.

GARZA COUNTY

Pandem Oil Corp.'s No. 1 Justice, 330 ft. from S and W of Sec. 12, Blk. 4, H.&G.N. Sur. ..... Spudded and shut down.
Perry & Porsey's No. 1 Justice, 1,980 ft. from S and 1,680 ft. from E of Sec. 25, Blk. 6, H.&G.N. Sur. (3,500-foot cable tool test) ..... Moving in material.

GLASSCOCK COUNTY

World Oil Co.'s No. 3-C McDowell, 2,310 ft. from S and W of NE cor., Sec. 21, Blk. 34, Twp. 2s, T.&P. Sur. .. Temp. aband.; total depth 660 ft.

HOWARD COUNTY

G. F. Getty's No. 1 Snyder, Sec. 27, Blk. 10, Twp. 1s, SW cor. NE NE ..... Shut down 3,500 ft.
Green O. & R. Co.'s No. 1 Denman, 990 ft. from S and 2,310 ft. from W, Sec. 14, Blk. 30, Twp. 1s, T.&P. Sur... Location.
Group No. 1 Oil Corp.'s No. 2 Eason, 1,320 ft. from S and W, Sec. 6, Blk. 32, Twp. 2s, T.&P. Sur. ..... Standardizing 2,176 ft.
Moody Oil Corp.'s No. 23-B Roberts, 990 ft. from N and W of Sec. 137, Blk. 29 ..... Temp. aband. 261 ft.

HUDSPETH COUNTY

Theison's No. 1 University, 3,050 ft. from S and 2,225 ft. from E of Sec. 17, Blk. E ..... Spudded 35 ft. and shut down.

IRION COUNTY

Central Oil Co.'s No. 2 Horney, 150 ft. from N and 1,320 ft. from E, Sec. 3, Blk. 3, H.&T.C. Sur. ..... Shut down 1,299 ft.
Cromwell et al's No. 3 Tankersley, 150 ft. from N and 210 ft. from W of E half Sec. 1,320, G.C.&S.F. Sur.... Shut down 1,712 ft.; show oil 1,621-25 ft.
Denny & Andrews' No. 1 Tankersley, 1,000 ft. from E and 460 ft. from S of H. Volker Sur. No. 723 ..... Drlg. 910 ft.
Dixie Oil Co.'s No. 1 Williams, 1,320 ft. from S and E of Sec. 1,196, T.T.R.R. Sur. ..... Drlg. 1,048 ft.
Straughn & Texannati Oil Co.'s No. 1 Tankersley, 150 ft. from S and 750 ft. from W of Sec. 4, Gonzales County School Land ..... Shut down 1,473 ft.
F. F. Webb's No. 1 W. H. Williams, 200 ft. from E and 750 ft. from S line, SW NE, Sec. 10, Gonzales County School Land ..... Shut down 100 ft.

JONES COUNTY

Bond & Trout's No. 1 Williams, 330 ft. S and E of SW cor. of J. W. Martin Sur. A-1,308 in Sec. 12 ..... Total depth 2,171 ft.; underreaming 8¼-in. casing.
J. L. Hart et al's No. 1 Roberts ..... Total depth 1,000 ft.
Jameson et al's No. 1 King, 4,681 ft. from S and 150 ft. from E of M. Bueno Sur. No. 196 ..... Fishing 1,550 ft.
Shaheen & Duffy's No. 1 King, 2,650 ft. from N and from N and W, Lot 5, M. Bueno Sur. No. 197 ..... Shut down 2,007 ft.; shut in for proration.
Union Oil Co. of Nevada & Shaheen's No. 1 King, 200 ft. from N and W, Lot 5, M. Bueno Sur. No. 197 ..... Drlg. 1,215 ft.
S. C. Yingling et al's No. 1 Cade, 330 ft. from N and W from SE cor. NW, Sec. 17, Blk. 19, T.&P. Sur. ..... Swabbing and testing 2,555 ft.; swabbed 318 bbls. in 18-hr. test; shut in for proration.
Yingling et al's No. 1 Williams, 330 ft. N and E of SE cor. of Cade 160-acre tract but in Williams 200-acre farm, Sec. 17, Blk. 19, T.&P. Sur. ..... Rig.

LOVING COUNTY

Cromwell et al's No. 1 Russell et al, 2,310 ft. from NE and 330 ft. from NW, Sec. 80, Blk. 1, W.&N.W. Sur... Drlg. 3,565 ft.
Douglas et al's No. 1 Wheat & Ramsey, 330 ft. from SE and 2,310 ft. from SW, Sec. 83, Blk. 1, W.&N.W. Sur.. Shut down 2,420 ft.
Eppenauer et al's No. 2 Allen, 2,310 ft. from NE and 330 ft. from NW, Sec. 90, Blk. 1, W.&N.W. Sur. ..... Cellar.
Falbre & Evans' No. 1 Dean, 330 ft. from NE and 990 ft. from NW, Sec. 79, Blk. 33, H.&T.C. Sur. ..... Rig.
Henshaw et al's No. 2 Reagan & McElvain, 1,650 ft. from SW and 990 ft. from SE, Sec. 84, Blk. 7, W.&N.W. Sur. ..... Rig.
Hoffman et al's No. 1 Ramsey et al, 330 ft. NE and SE Sec. 83, Blk. 1, W.&N.W. Sur. ..... Rig.
Hoffman et al's No. 2 Ramsey et al, 2,310 ft. from NE and 330 ft. from SE, Sec. 83 ..... Location.
Lockhart & Co.'s No. 3 Bowen & Wells, 330 ft. from NE and SE of Sec. 92, Blk. 1, W.&N.W. Sur. ..... Shut down 3,383 ft.
Lockhart & Co.'s No. 2 fee, 676 ft. S, 330 ft. W, Sec. 91, Blk. 1, W.&N.W. Sur. ..... Shut down 4,016 ft.
Lockhart's No. 1 Hubbard, 6,930 ft. from NE and 330 ft. from SE, Sec. 83, Blk. 33, H.&T.C. Sur. ..... Drlg. 710 ft.
Lockhart & Co.'s No. 3 Hubbard, 1,650 ft. from NE line, 330 ft. NW line of Sec. 33, H.&T.C. Sur. ..... Rigged up and shut down.
Miller et al's No. 1 Chapman, 225 ft. from NW and 285 ft. from SW line, Sec. 71, W.&N.W. Sur. ..... Cleaning out; total depth 4,356 ft.
Rush et al's No. 1 Wheat, 330 ft. from NW and SW, Sec. 77, Blk. 1, W.&N.W. Sur. ..... Cellar.
Slagel Drlg. Co.'s No. 1 Cartwright et al, 2,310 ft. from S and 990 ft. from W, Sec. 1, Blk. 57, Twp. 1, T.&P. Sur. ..... Drlg. 1,802 ft.
Tennant et al's No. 1 Martin, 990 ft. from NW and SW Sec. 66, Blk. 1, W.&N.W. Sur. ..... Location.
California Co.'s No. 2 Allen, 2,310 ft. from SE and SW lines, Sec. 90, Blk. 1, W.&N.W. Sur. ..... Drlg. 275 ft
California Co.'s No. 7 Reagan & McElvain, 2,032 ft. from SE and 1,014 ft. from NE of Sec. 84, Blk. 1, W.& N.W. Sur. ..... Drlg. 3,560 ft.
West Texas Pet. Corp.'s No. 1 Salsbury, 330 ft. from NW and SW Sec. 89, Blk. 1, W.&N.W. Sur. ..... Location.

MENARD COUNTY

Priest's No. 1 Sorrell, 1,000 ft. from E and 200 ft. from S cor., Sec. 132, E.L.R.R. Sur. ..... Shut down 2,712 ft.

MITCHELL COUNTY

Lewis & Slagel's No. 1 Bell ..... Cleaning out 2,535 ft. after 200-qt. shot 2,460-2,561 ft.; total depth 2,827 ft.

PECOS COUNTY

Bell et al's No. 1 Schraff & Blackman, 2,310 ft. NE and 330 ft. NW of E cor., Sec. 37, Blk. 3, H.&T.C. Sur. ... Shut down 1,624 ft.; top pay 1,600 ft.; shot 50 qts.; hole filled up 350 ft. oil in 12 hrs.
Bell et al's No. 1 Eaton (Sun Oil Co.), 2,310 ft. from NE and SE, Sec. 35, Blk. 3, H.&T.C. Sur. ..... Drlg. 1,500 ft.
Culberson Bros.' No. 1 Tippett (Humble), 150 ft. S and 843 ft. E of C Sec. 40, Blk. 194, G.C.&S.F. Sur. ..... Location.
Dittman's No. 1 Jackson, 2,310 ft. from NE and 330 ft. from NW, Sec. 28, Blk. 3, H.&T.C. Sur. ..... Rig up.
Dittman's No. 2 Eaton, 990 ft. from SW and 330 ft. from SE, Sec. 35, Blk. 2, H.&T.C. Sur. ..... Location.
Dittman's No. 1 Eaton, 330 ft. from NE and SE, Sec. 37, Blk. 3, H.&T.C. Sur. ..... Shut down 1,634 ft.; top pay 1,618 ft.; hole filled 1,000 ft. with oil.
Humble Oil & Ref. Co.'s No. 1 Kokernot, 1,320 ft. from N line and 1,467 ft. from W line of Sec. 227, Blk. 10, G.H.&S.A. Sur. ..... Shut down 6,170 ft.
Lancaster's No. 1 Eaton (Pure), 330 ft. from SE and SW, Sec. 35, Blk. 3, H.&T.C. Sur. ..... Drlg. 450 ft.
Magnolia Pet. Co.'s No. 1 Eaton, 2,310 ft. from SW and 330 ft. from NW, Sec. 35, Blk. 3, H.&T.C. Sur. ..... Drlg. 550 ft.
Mann's No. 1 Schraff & Blackman, 3,000 ft. from SW and 990 ft. from SE, Sec. 32, Blk. 3, H.&T.C. Sur. .... Shut down 2,098 ft.
McCurdy & Brown's No. 2 Tippett, 150 ft. from N and W of SE, Sec. 40, Blk. 104, G.C.&S.F. Sur. ..... Location.
McCarty Oil Co.'s No. 3 Gray, 700 ft. from N and 2,260 ft. from W, Sec. 591, G.C.&S.F. Sur. ..... Fishing 1,437 ft.
Messenger et al's No. 1 Butz, 1,830 ft. from NW and 1,170 ft. from SW, Sec. 54, Blk. 10, H.&G.N. Sur. .... Shut down 1,299 ft.
Mid-Kansas O. & G. Co. et al's No. 1-A Sellman, 250 ft. from S and 330 ft. from W, Sec. 12, Blk. 194, G.C. &S.F. Sur. ..... Shut down 1,745 ft.
J. R. Miller et al's No. 1 Bennett, 359 ft. W of CWL, Sec. 1, Blk. 119, G.C.&S.F. Sur. ..... Shut down 2,283 ft.
J. D. O'Mara's No. 1 Bennett, Sec. 593, 1,460 ft. from S, 150 ft. from E, G.C.&S.F. Sur. ..... Total depth 1,230 ft.; top pay 1,089 ft.; plugged back to 1,185 ft.; will drill deeper.
J. D. O'Mara's No. 1 Streety, S of Sec. 1, W. P. Howard Sur. ..... Shut down 2,210 ft.
Penn Oil Co. et al's No. 1 Alvis, 2,358 ft. from S and 1,327 ft. from W, Sec. 155, Blk. 3, T.&P. Sur. ..... Underream 10-in. casing 1,550 ft.
Perren Oil Co.'s No. 2 Eaton, C of E, Sec. 27, Blk. 3, H.&T.C. Sur. ..... Shut down 1,765 ft.
Pure Oil Co.'s No. 1 Harrison, 2,310 ft. from N and 330 ft. from W of Sec. 203, Blk. 3, T.&P. Sur. ..... Shut down 5,000 ft.
Riser & White's No. 1 Riser, 2,297 ft. from S and 997 ft. from E of Sec. 24, Blk. 12, H.&G.N. Sur. ..... Shut down 500 ft.
Schilling & Slaughter's No. 1 Yates, 1,580 ft. N and 150 ft. E of NW cor. Runnels County School Land, but located in Sec. 70, Blk. 1, I.&G.N. Sur. ..... Shut down 337 ft.
Southern Crude Oil Pur. Co.'s No. 1 Schraff & Blackman, 4,550 ft. 40° E and 330 ft. 50° W of most southerly cor., Sec. 38, Blk. 3, H.&T.C. Sur. ..... Shut down 2,310 ft.
California Co. et al's No. 1 Thomas, 990 ft. from NW and SW, Sec. 31, Blk. 34, H.&T.C. Sur. ..... Location.
The Texas Company's No. 1 Wright, 660 ft. S and E of NW cor., Sec. 9, Blk. 131, T.&St.L. Sur. ..... Shut down 3,504 ft.

Williams & Moran's No. 1 Heiner Est., 450 ft. from N and 2,490 ft. from W of Sec. 690, G.C.&S.F. Sur. ..... Drlg. 1,718 ft.

REAGAN COUNTY

Big Lake Oil Co.'s No. 6-C University, 1,120 ft. S and 1,100 ft. from W, Sec. 25, Blk. 9 ..... Location.

REEVES COUNTY

R. T. Hansford's No. 1 Williams, 150 ft. from S and W, Sec. 17, Blk. 6, H.&G.N. Sur. ..... Shut down 380 ft.

Riggs & Smith's No. 1 Lee Monroe, 2,190 ft. from NE and 330 ft. from NW line, Sec. 34, Blk. 8, H.&L.N. Sur. ..... Shut down 264 ft.

Salisbury & Gregory's No. 1 Young Bell, 1,170 ft. from N and 330 ft. from NW line, Sec. 34, Blk. 7, H.&L.N.... Temporarily abandoned.

Lee O. White et al's No. 1 Hershersor, 330 ft. from N and W lines of Sec. 5, Blk. 51, Twp. 10, T.&P. Sur... Shut down 4,415 ft.

California Co.'s No. 2 Kloh & Rumsey, 990 ft. from S and 1,520 ft. from E. Sec. 11, Blk. 54, Twp. 4, T.&P. Sur. ..... Shut down 1,127 ft.

RUNNELS COUNTY

Dutton et al's No. 1 Dean, 5,475 ft. from NE and 1,048 ft. from NW in J. Heil Sur. No. 419 ..... Shut down 2,175 ft.

SCHLEICHER COUNTY

Eastland Oil Co.'s No. 1 Joe Tisdale, C Sec. 29, Blk. M, G.H.&S.A. Sur. ..... Drlg. 650 ft.

Teas & Gant's No. 1 Allison, 1,320 ft. N and E of SW cor. Sec. 37, Blk. K, G.H.&S.A. Sur. ..... Drlg. 4,470 ft.

Wesner et al's No. 1 Nicks, 2,310 ft. from N and 2,362 ft. from E of Sec. 77, Blk. LL, T.C. Sur. ..... Underreaming 12½-in. casing.

George Wilson's No. 1 Page, Sec. 40, Blk. L, 1,290 ft. from N, 1,470 ft. from W, G.H.&S.A. Sur. ..... Shut down 5,027 ft.

SCURRY COUNTY

G. E. Dickman and R. B. Pender et al's No. 1 F. C. Davis, 1,000 ft. N and 1,770 ft. W of SE cor. of Sec. 275, Blk. 2, H.&T.C. Sur. ..... Shut down 4,970 ft.

Scurry County Oil Exchange's No. 1 Earnest, 2,310 ft. from N and W, Sec. 68, Blk. 3, H.&G.N. Sur. ..... Cellar.

Seifert & Dibble's No. 1 T. M. Blackburn, 2,310 ft. from N and 2,310 ft. from W line of Sec. 155, Blk. 97, H.&T.C. Sur. ..... Shut down 2,316 ft.

STERLING COUNTY

Beesley et al's No. 1 Foster, 2,940 ft. N and 300 ft. W of SW cor. Sec. 7, Blk. 22, H.&T.C. Sur., but in Sec. 16, Blk. 21, Twp. 4s, T.&P. Sur. ..... Hole junked; will skid; total depth 645 ft.

TAYLOR COUNTY

John B. Jameson's No. 1 Webb, 1,170 ft. S and W of NE cor., Sec. 46, Lunatic Asylum Land ..... Shut down 6,251 ft.

Sanger et al's No. 1 City of Abilene, 330 ft. from S and 1,400 ft. from E of Sec. 66, Blind Asylum Land ..... Drlg. 2,600 ft.

TERRELL COUNTY

Big Bend Oil Co.'s No. 1 Bassett, C NW, Sec. 155, Blk. D, M.-K.-T. Sur. ..... Shut down 2,669 ft.

Keck Pecos Trust Co.'s No. 1 Hamilton, C, Sec. 6, Georgetown Ry. Sur. ..... Shut down 3,150 ft.

Miller Bros.' No. 1 Allison & Burke, C NW cor., Sec. 10, Blk. 176, T.&P. Sur. ..... Shut down 120 ft.

Mrs. J. B. McPhees' No. 1 Sam Belt, C, Sec. 16, Blk. D-7, E.L. Sur. ..... Shut down 880 ft.; moved off machine.

Transcontinental Oil Co.'s No. 1 Goode, 2,152 ft. from E and 330 ft. from S. Sec. 26, Blk. 161, G.C.&S.F. Sur.... Shut down 5,530 ft.

Woodley & Jones' No. 1 Pankenham, C SE NW, Sec. 43, Blk. B-2, C.C.S.D.&R.G.N.G. Sur. ..... Shut down 640 ft.

TOM GREEN COUNTY

Belding & Dutton's No. 1 Norsworthy, 2,640 ft. from S and 587 ft. from E of John McNeese Sur. ..... Shut down 760 ft.; show oil and gas 725 ft.

Fitzgerald & Taliaferro's No. 1 Bennett, C SW, Sec. 1,628, E. H. Dinger Sur. ..... Plugged back to 2,405 ft. to straighten hole; shut down 2,447 ft.

Mintex Oil Co.'s No. 1 Campbell Est., 446 ft. from S and 630 ft. from W of Sec. 180, Dist. No. 11, S.P. Sur. .... Shut down 1,994 ft.

Pratt & Hancock's No. 2 Lewis, 100 ft. N and 330 ft. E of most northerly SW cor. of Joshua S. Grant Sur. No. 2 ..... Shut down 200 ft.

UPTON COUNTY

Corzelius et al's No. 1 Shirk (Tidal Oil Co.), 2,317 ft. from W and 418 ft. from S. Sec. 15, Blk. 3, M.-K.-T... Shut down 2,400 ft.

Humble O. & R. Co.'s No. 15 Ricker, 3,300 ft. from NE and 3,280 ft. from NW, Sec. 5, Mary S. Denton Sur.... Drlg. 2,192 ft.

R. R. Penn & Shell Pet. Corp.'s No. 1 Halamicek, C SE Sec. 93, Blk. D, C.C.S.D.&R.G.N.G. Sur. ..... Drlg. 3,720 ft.

T. P. Coal & Oil Co.'s No. 1 King Ranch Oil & Lignite Co., 2,310 ft. from N and 990 ft. from W, Sec. 28, Blk. 2, M.-K.-T. Sur. ..... Drlg. 2,560 ft.

VAL VERDE COUNTY

Independent Operators' No. 1 Whitehead, SE SE, Sec. 10, Blk. 4, I.&G.N. Sur., elev. 1,175 ft. ..... Shut down 5,360 ft.

O. O. Owens' No. 1 Mills, Sec. 128, Blk. 1, I.&G.N. Sur., elev. 2,130 ft. ..... Waiting for cement to set 6,780 ft.

WARD COUNTY

Bradford et al's No. 1 Carson, 990 ft. from NE and SE Sec. 26, Blk. 5, H.&T.C. Sur. ..... Location.

Empire Gas & Fuel Co.'s No. 1 John Sealy estate, 330 ft. from S and 1,650 ft. W of NE cor., Sec. 5, Blk. F, T.&M.M. Bros. Sur. ..... Drlg. by tools 2,610 ft.

Gulf Prod. Co.'s No. 3 Wristen Bros., 220 ft. NE of SW and 220 ft. SE of NW, Sec. 18, Blk. 5, H.&T.C. Sur.... Show gas 1,960-70 ft.; filling up with sulphur water 2,520-77 ft.; salt water 2,515 ft.; plugged back to 2,477 ft.

Gulf Prod. Co.'s No. 16 O'Brien, 2,310 ft. from S and 990 ft. E, Sec. 16, Blk. F, L.M.&W.B.&A. Sur. ..... Total depth 1,291 ft.

Kugle et al's No. 1 Wallace, 330 ft. from SE and 1,263 ft. from SW, Sec. 19, Blk. 34, H.&T.C. Sur. ..... Drlg. 1,950 ft.

Magnolia Pet. Co.'s No. 1 Sealy (Atlantic), 2,130 ft. from S and 1,650 ft. from E. Sec. 45, Blk. F, G.M.M.B.&A. Sur. ..... Shut down 803 ft.

R. F. Owens' No. 1 Johnson, 100 ft. from NE and 1,100 ft. from SE of Sec. 8, Blk. 33, H.&T.C. Sur. ..... Drlg. 1,900 ft.

Prairie O. & G. Co.'s No. 1 Hill, 330 ft. from NE and NW, Sec. 30, Blk. B-29, P.S.L. Sur. ..... Drlg. 965 ft.

Rickford & Smith's No. 1 Johnson, 120 ft. NE and 175 ft. SE of N cor., Sec. 7, Blk. 32, H.&T.C. Sur., but located in Sec. 11, Blk. 5, H.&T.C. Sur. ..... Shut down 1,550 ft.

Paul Ryan's No. 1 Allen, 998 ft. from NW and 3,624 ft. from NE, Sec. 11, Blk. 5, H.&T.C. Sur. ..... Rig up.

Shipley et al's No. 5 Hayzlett, 2,490 ft. from SE and 1,980 ft. from SW, Sec. 17, Blk. 5, H.&T.C. Sur. ..... Shut down 760 ft.

California Co. et al's No. 1 Lanham, 990 ft. from NE and SE, Sec. 35, Blk. 34, H.&T.C. Sur. ..... Building rig.

California Co.'s No. 1 Gordon, 330 ft. from NE and SE, Sec. 6, Blk. 34, H.&T.C. Sur. ..... Rig.

Shipley et al's No. 1 Monroe, 330 ft. SE SW Sec. 3, Blk. 1 ..... Fishing 3,780 ft.

California Co.'s No. 1 Allen, 2,310 ft. from NE and 330 ft. from SE, Sec. 30, Blk. 34, H.&T.C. Sur. ..... Shot 100 qts. 2,640-80 ft.; no results; cleaning out 55 ft. off bottom; total depth 2,710 ft.

WINKLER COUNTY

Magnolia Pet. Co.'s No. 1 Bashara, 1,650 ft. from S and 2,310 ft. from W, Sec. 17, Blk. B-3, P.S.L. Sur. ..... Fishing 2,520 ft.

Magnolia Pet. Co.'s No. 1 Walton, 2,310 ft. from N and W Sec. 16, Blk. 77, P.S.L. Sur. ..... Drlg. 1,460 ft.

A. W. Phillips' No. 2 Brown et al, 2,000 ft. S and W of NE, Sec. 4, Blk. B-5, Public School Land ..... Shut down 3,506 ft.

Liner Drlg. Co.'s No. 1 Campbell, 330 ft. from N and E cor., Sec. 2, Blk. B-5 ..... Shut down 4,639 ft.

WILDCAT OPERATIONS IN TEXAS PANHANDLE

(Continued from Page 50)

Beck's No. 1 Sullivan, 330 ft. N and E, W½ NW, Sec. 135, Blk. 3, I.&G.N. Sur. ..... Estimated 30,000,000 ft. gas 2,520-2,650 ft; 5,000,000 ft. gas 2,845-50 ft; T.D. 2,868 ft; (S.L.M.); C.O.

Boyles et al's No. 1 Colebank-Morse, 330 ft. NE, Sec. 65, Blk. 25, H.&G.N. Sur. ..... Spudded and S.D.

Brown et al's No. 1 Duncan, 330 ft. S and E. NW, Sec. 93, Blk. 3, I.&G.N. Sur. ..... S.D. 740 ft.

Danciger O. & R. Co.'s No. 1 Sullivan, 231 ft. N, 224 ft. W, of E 160 ac. of S 264 ac., N½, Sec. 136, Blk. 3, H.&G.N. Sur. ..... S.D. 2,383 ft.

Danciger O. & R. Co.'s No. 1 Barnett, 231 ft. S, 330 ft. W, E½ of N 56 ac., Sec. 136, Blk. 3, I.&G.N. Sur. .. T.D. 2,863 ft; standardizing.

Danciger O. & R. Co.'s No. 2 Sullivan, 231 ft. N, 884 ft. W of E 160 ac. of S 264 ac., N½, Sec. 136, Blk. 3, H.&G.N. Sur. ..... Estimated 6,000,000 ft. gas 2,997-3,065 ft; S.O. 3,155-69 ft; T.D. 3,217 ft; swbng. 30 bbls. a day from lime pay 3,155-69 ft.

Empire G. & F. Co.'s No. 3 Wall, 990 ft. S and W. NW, Sec. 161, Blk. 3, I.&G.N. Sur. ..... Location.

Empire G. & F. Co.'s No. 1 Ruscoe, 1,320 ft. N., 660 ft. E, W½ SE, Sec. 111, Blk. 3, I.&G.N. Sur. ..... Drlg. 2,035 ft.

Hurst et al's No. 1 Ayres, 330 ft. S and E, Sec. 76, Blk. 3, I.&G.N. Sur. ..... Rotary rig.

Jean Pet. Co.'s No. 1 Furneaux Bros., 330 ft. N and W, cor. SE, Sec. 200, Blk. B-2, H.&G.N. Sur. ..... S.D. 2,770 ft.

Kewanee O. & G. Co.'s No. 1-D Morse, 330 ft. N and W, S½ SW, Sec. 16, Blk. A-9, H.&G.N. Sur. ..... Rotary rig.

Kewanee O. & G. Co.'s No. 1-E Morse, 330 ft. N and E, S½ SE, Sec. 15, Blk. 9-A, H.&G.N. Sur. ..... Rigging up.

Kewanee O. & G. Co.'s No. 3 Smith, 330 ft. N and W. Sec. 149, Blk. 3, I.&G.N. Sur. ..... Location.

Magnolia Pet. Co.'s No. 1 Barrett, 330 ft. S and E, NE, Sec. 112, Blk. 3, I.&G.N. Sur. ..... Location.

Magnolia Pet. Co.'s No. 2 Heitholt, 150 ft. S, 1,156 ft. W, SE, Sec. 152, Blk. 3, I.&G.N. Sur. ..... Drlg. 2,745 ft; 4,000,000 ft. gas 2,720-45 ft.

Magnolia Pet. Co.'s No. 4 Latham, 300 ft. N, 820 ft. E, Sec. 153, Blk. 3, I.&G.N. Sur ..... Drlg. 480 ft.

Magnolia Pet. Co.'s No. 1 Eddington, 330 ft. N, 370 ft. E, NE, Sec. 34, Blk. B-2, H.&G.N. Sur. ..... Fishing 2,379 ft.

Magnolia Pet. Co.'s No. 1 Morse, 330 ft. N and W, S½ NE, Sec. 5, Blk. 26, H.&G.N. Sur. ..... Drlg. 2,410 ft.

Mazda Oil Co.'s No. 1 Combs & Worley, 330 ft. S, 180 ft. W, NE, Sec. 35, Blk. 3, I.&G.N. Sur. ..... T.D. 2,930 ft; T.P. 2,924 ft; estimated 100 bbls. oil with 17,000,000 ft. gas; bldg. storage.

McIlroy Oil Co.'s No. 1 Baer, 330 ft. S and W, Sec. 125, Blk. 3, I.&G.N. Sur. ..... Spudding.

Nelson et al's No. 1 Crews, 330 ft. S and E, NW, Sec. 12, Blk. 25, H.&G.N. Sur. ..... Fishing for bit; T.D. 2,620 ft.

Operators Royalty & Prod. Co.'s No. 2 Vanniman, 330 ft. S and W, E½ NE, Sec. 175, Blk. 3, I.&G.N. Sur. Drlg. 1,320 ft.

Phillips Pet. Co.'s No. 2 Barnett, 130 ft. N, 465 ft. W, Sec. 136, Blk. 3, I.&G.N. Sur. ..... S.D. 3,351 ft.

W. A. Scott's No. 1 Cobb, 330 ft. S, 425 ft. W, N½ SE, Sec. 184, Blk. 3, I.&G.N. Sur. ..... Estimated 4,000,000 ft. gas 2,875 ft; drlg. 3,190 ft.

Smith's No. 1 Morse, 200 ft. S, 330 ft. W, Sec. 6, Blk. 26, H.&G.N. Sur. ..... 3,000,000 ft. gas 2,150-70 ft; S.D. 2,892 ft; 400 ft. oil in hole.

Southern States Gas Co.'s No. 1 Case, 330 ft. N and W. E½, Sec. 181, Blk. B-2, H.&G.N. Sur. ..... Spudded.

Sullivan & Ochiltree's No. 1-A Morse, 330 ft. S and W, N½ NE, Sec. 15, Blk. A-9, H.&G.N. Sur. ..... Rig.

Warner Oil Co.'s No. 1 Morse, 330 ft. S and W, N½ NW, Sec. 68, Blk. 25, H.&G.N. Sur. ..... Cellar.

HUTCHINSON COUNTY

Canadian River Gas Co.'s No. 1 Dunnaway, 330 ft. N, 1,320 ft. E, NE NE, Sec. 5, Blk. Y-2, T.T. Sur. ..... Bldg. rig to deepen from 1,550 ft.

Continental Oil Co.'s No. 1 Moore, 990 ft. S, 2,276 ft. W, S½ SW, Sec. 21, Blk. M-21, T.C. Sur. ..... Bldg. rotary.

Deal O. & G. Co.'s No. 2 Sanford, 330 ft. N and E of N 80 ac., S 160 ac., Sec. 51, Blk. 46, H.&T.C. Sur. .. Drlg. 450 ft.

Dixon Creek Oil Co.'s No. 1-F Johnson Bros., 330 ft. N and E of W 67 ac., SW, Sec. 15, Blk. XO3, H.&O.B. Sur. ..... Drlg. 2,200 ft.

Huber Prod. Co.'s No. 1 Johnson Bros. (Premier), 330 ft. N and E, of W 60 ac., N 80 ac., NW, Sec. 3, Blk. Y, A.&B. Sur. ..... Rotary rig.

Liner Drlg. Co.'s No. 1-D Johnson Bros., 330 ft. N and E, W½ SW, Sec. 6, Blk. 1, B.&B. Sur. ..... S.D. 2,773 ft.

Liner et al's No. 1 Johnson Bros., 990 ft. S, 330 ft. E, W½ SE, Sec. 29, Blk. Y, A.&B. Sur. ..... Spudded and S.D.

Stanolind O. & G. Co.'s No. 1 Barnhill, common cor. of tracts 28, 29, 30 and 31 of G. Martinez Sur., Blk. 2. S.D. 2,780 ft.

Sinclair O. & G. Co.'s No. 1-A Johnson Bros., 330 ft. N, 430 ft. E, NW, Sec. 32, Blk. Y, A.&B. Sur. ..... Drlg. 3,130 ft.

Skelly Oil Co.'s No. 1 Johnson Bros., 660 ft. S and W, SE, Sec. 30, Blk. Y, A.&B. Sur. ..... S.O. 3,065 ft. and 3,108-10 ft; S.D. for pipe line connection 3,110 ft.

Texilvania Oil Co.'s No. 1 Harvey, 330 ft. N and W, SW NW, Sec. 14, Blk. M-21 ..... S.D. 450 ft.

LIPSCOMB COUNTY

Okla. Public Service Co.'s No. 1 C. W. Jones, NE SW, Sec. 100, H.&T.C. Sur. ..... T.D. 5,003 ft.

LUBBOCK COUNTY

Center Oil Co.'s No. 1 Bowles Ranch ..... Small S.O. 1.133-40 ft; S.D. 4,167 ft.

MOORE COUNTY

Cloud & Dana's No. 1 Jones, 330 ft. N and E, SW, Sec. 169, Blk. 3-T, T.&N.O. Sur. ..... Standardizing 2,560 ft.

Continental Oil Co.'s No. 1 Brown, 990 ft. N and W, SE, Sec. 172, Blk. 3-T, T.&N.O. Sur. ..... Drlg. 650 ft.

Dana O. & G. Co.'s No. 1 R. Utey, 330 ft. S and W, NE, Sec. 135, Blk. 3, T.&N.O. Sur. ..... Rig.

Gulf Prod. Co.'s No. 1 Dare, C SE, Sec. 312, Blk. 44, H.&T.C. Sur. ..... T.D. 3,102 ft; 13,000,000 ft. gas.

Gulf Prod. Co.'s No. 2 Kilgore, C SE, Sec. 29, Blk. P.Mc., E.L.R.R. Sur. ..... Drlg. 500 ft.

Sunray Oil Co.'s No. 1 Rupert, 660 ft. N, 330 ft. E, NW, Sec. 191, Blk. 3-T, T.&N.O. Sur. ..... Cellar.

Plains Holding Co.'s No. 1 Bridges, 1,690 ft. S and E, NW, Sec. 252, Blk. 3-T, T.&N.O. Sur. ..... Rig (rotary).

Sunray Oil Co.'s No. 2 Jones, 330 ft. S, 990 ft. E, W½ SW, Sec. 164, Blk. 3-T, T.&N.O. Sur. ..... Rig on ground.

MOTLEY COUNTY

Matador Oil Corp.'s No. 1 Owens, C NE, Sec. 10, Blk. G, B.&B. Sur. ..... S.D. 580 ft.

OLDHAM COUNTY

Amalgamated German-American Oil Corp.'s No. 1 Norton, 330 ft. S and E, Sec. 12, T.&N.O. Sur. ..... Spudded and S.D.

Chambers et al's No. 1 Herring, CNL, Sec. 29, Blk. S, G.C.&S.F. Sur. ..... S.D. 680 ft.

POTTER COUNTY

Canadian River Gas Co.'s No. 1-B Crawford ..... Drlg. 1,110 ft.

WHEELER COUNTY

Devore & Robinson's No. 1 Sitter, 2,310 ft. S and E, Sec. 33, Blk. 24, H.&G.N. Sur. ..... T.D. 1,800 ft; set 10-in. csg; S.D.

Reno Oil Co. et al's No. 1 D'spain, 330 ft. N and W, NE, Sec. 52, Blk. 24, H.&G.N. Sur. ..... Location.

Vollmert's No. 1 Porter, 330 ft. S and E, NE, Sec. 15, Blk. 27, H.&G.N. Sur. ..... Rig.

SOUTHWEST TEXAS PROVEN AREAS

(Continued from Page 42)

E. E. Ertell's No. 7 J. C. Abbott ..... T. D. 100 ft.; standing.
E. L. Chapman et al's No. 2-D Sides ..... T. D. 1,888 ft.; comp. for 50 bbls.
J. L. Collins & Co.'s No. 5 M. V. Lawrence, 150 ft. from W line, 515 ft. from S line of 27-ac. tract, S. Miller Sur. ..... T. D. 1,402 ft.; standing.
Marts and Ertell's No. 1 Abbott, Simon Miller Sur. .... Rigging up.
Sequoia Oil Co.'s No. 7 T. P. Simmons ..... Location.
G. Stratton's No. 8 J. C. Abbott, 450 ft. from E line, 150 ft. from S line of 32-ac. tract, S. Miller Sur. .... T. D. 1,730 ft.; set csg.
Stratton et al's No. 9 Abbott ..... Rigged up.
Vitex Oil Co.'s No. 8 Kilgore, Simon Miller Sur. ..... T. D. 1,735 ft.; waiting on cement.

PETTUS AREA—BEE COUNTY

J. L. Mauldin's No. 1 fee, 1,300 ft. N of S line, 150 ft. E of Medio Creek, Kerr Sur. ..... T. D. 3,734 ft.; shut down for fuel.
Houston Oil Co.'s No. 1, Blk. 23 ..... T. D. 3,911 ft.; to be deepened.
Houston Oil Co.'s No. 1, Blk. 33 ..... T. D. 3,914 ft.; to be deepened.
Union Producing Co.'s No. 26 Ray, 3,500 ft. from S line, 2,000 ft. from E line, P. Miller Sur. ..... T. D. 3,951 ft.; comp. gas well.
United Prod. Co.'s No. 32 Ray, G. Habbermacker Sur. .. Rigging up.

AGUA DULCE FIELD—NUECES COUNTY

South Texas Production Co.'s No. 9 Walter, 800 ft. from S line, 460 ft. from E line of Walters tract in Sec. 34 ..... T. D. 1,984 ft.; standing.
Houston Oil Co.'s No. 1-B Ollie Purl ..... T. D. 627 ft.; set csg.
Houston Oil Co.'s No. 1 Comstock, Sec. 86, Benton Pasture Sur. ..... T. D. 4,913 ft.; shut in for pipe line.

SAXET FIELD—NUECES COUNTY

O. C. Best et al's No. 1 Boory ..... Derrick.
Houston Oil Co.'s (Andy Bowen) No. 1 Prieur, H. B. Shappard Sur. ..... T. D. 1,465 ft.; waiting for csg.
Moody-Seagraves Producing Co.'s No. 1 Smith, 450 ft. from N and E line of 120-ac. tract, J. Dunn Sur. .... T. D. 4,950 ft.; plugging back to 4,060 ft.
W. L. Pearson Properties' No. 1 Dunn, 300 ft. S of Bay ..... Shut down 2,600 ft.
Pearson Properties, Inc.'s No. 1 State National Bank .... Shut down 2,470 ft.; abnd.
Saxet Oil Co.'s No. 7 Dunn ..... Location.

LAREDO DISTRICT

SCHOOLFIELD-O'BYRNE POOL—DUVAL COUNTY

Frasher et al's No. 2 Duval Land Co., G.B.&C.N.G. Sur. No. 135 ..... T. D. 820 ft.; drlg.

RANDOLPH POOL—JIM HOGG COUNTY

J. W. Pippin's No. 1 Hinnant, 150 ft. eacn way from SW cor., Blk. 11, Sur. 147 ..... Derrick.

KOHLER POOL—DUVAL COUNTY

Humble Oil & Refining Co.'s No. 50 Kohler, 2,805 ft. from S line, 165 ft. from W line of Sur. 164 ..... T. D. 3,439 ft.; drlg.

COLE POOL—DUVAL COUNTY

Southern Oil Co.'s No. 2 King-Harper, 1,794 ft. E line, 729 ft. N line of Sur. 323 ..... Location.

COLE POOL—WEBB COUNTY

O. W. Killam's No. 2 Cuellar, Cuellar grant ..... T. D. 2,355 ft.; abnd.
Magnolia Petroleum Co.'s No. 1 Peal, Share 3, Cuellar grant ..... T. D. 3,161 ft.; abnd.

REISER POOL—WEBB COUNTY

O. W. Killam's No. 1 Johnson, Sur. 1,617 ..... Derrick.

CAROLINA-TEXAS POOL—WEBB COUNTY

George S. Marshall's No. 1 C. W. Webster, 810 ft. from S line, 150 ft. from W line, Sur. 684 ..... T. D. 3,300 ft.; plugging back to 3,078 ft.

CHARCO REDONDO POOL—ZAPATA COUNTY

Midwest Public Utilities' No. 1 Zarza, 450 ft. SW line, 450 ft. SE line, Blk. 33, Pedernal grant ..... T. D. 1,562 ft.; standing.

JENNINGS-MUCKELROY POOL—ZAPATA COUNTY

Allied Oil & Gas Co.'s No. 12 Guiterrez, 750 ft. from NE line, 3,663 ft. from SE line, Share 4, Fansler Partition, Comitas grant ..... T. D. 100 ft.; standing.
Claypool and Nixon's No. 1 Garza, Blk. 11, Subdivision Zorro Ranch, Comitas grant ..... T. D. 1,402 ft.; comp. for 200 bbls.
Nordan and Morris' No. 3 de los Santos, Comitas grant .. T. D. 1,354 ft.; comp. 15,000,000 ft. gas.
S. T. Phelps' (Blankenship) No. 2 Garza, 425 ft. W line, 425 ft. E line, Blk. 2, Sur. 413 ..... T. D. 1,630 ft.; drlg.
Shankle-Newton's No. 8 Guiterrez, 4,525 ft. SE line, 150 ft. SW line, Share 4, Comitas grant ..... Location abandoned.
W. R. Shankle's No. 7 Guiterrez, 2,100 ft. from NE line, 2,898 ft. from NW line, Share 4, Fansler Partition, Comitas grant ..... Location abandoned.
S. R. C. Oil Co.'s No. 1 Cuellar, 150 ft. S and W lines, Blk. 16, Sur. 62 ..... Location.
S. R. C. Oil Co.'s No. 2 F. Cuellar, 300 ft. from S line, 300 ft. from E line, Blk. 8, Sur. 19 ..... T. D. 1,677 ft.; comp. 40,000,000 ft. gas.
S. R. C. Oil Co.'s No. 12-A Trevino, Sur. No. 66 ..... T. D. 1,286 ft.; bailing.
J. H. Winch's No. 3 A. Bustamente, 750 ft. NW line, 150 ft. NE line, Blk. 7, Share 5, Fansler Partition, Comitas grant ..... T. D. 1,430 ft.; comp. 30,000,000 ft. gas.

MIRANDO VALLEY POOL—ZAPATA COUNTY

A. R. McLennan's No. 1 Cuellar ..... T. D. 1,389 ft.; drlg.
O. W. Killam's No. 2 Killam, Sur. 182 ..... T. D. 1,328 ft.; comp. 2,500,000 ft. gas.

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

(Continued from Page 42)

Cosden Oil Co.'s No. 1 Stoltzfus, 2,310 ft. S and E lines of Sec. 14, Rangley Subd. of C. Miller ranch, Uranga Sur. ..... T. D. 4,500 ft.; shut down.
Humble and Huribut et al's No. 1 J. C. Wood, 150 ft. from NW line, 1,144 ft. from SW line of P. T. Irrigation Co. ..... T. D. 5,077 ft.; standing.
The Texas Company's No. 1 McCampbell, 150 ft. from N and E lines of 161-ac. tract, R. Pena Sur. ..... Location.
Simms Oil Co.'s No. 2 Holzmark, 660 ft. N and 20° E of No. 1, T. York Sur. ..... T. D. 4,458 ft.; perforating csg.
Rowan and Hope's No. 1 Goree, 600 ft. S, 300 ft. W Lot 4, T. B. Barton Sur. ..... Rigging up.

BEXAR COUNTY

Eckert & Son's No. 3 J. J. Brehm, 545 ft. from N line, 150 ft. from W line of lease, Sur. No. 58 ..... Location.
Bolling and Michael's No. 1 Adams, M. Gortaris Sur. .... Reinstated; T. D. 700 ft.; rigging up to deepen.
P. J. Connor's No. 1 Schnell, J. M. F. Perez Sur. No. 57 .. T. D. 450 ft.; drlg.
Gatlin Oil Co.'s No. 2 I. A. Beck, 150 ft. from SE line, 2,551 ft. from SW line of lease, J. Montes Sur. ..... Location.
Kaye and Uhl's No. 1 Rhode, C. Texada Sur. No. 123 .. T. D. 685 ft.; drlg.; base Taylor.
Long and Craig's No. 1 Sandemer ..... Location.
McElroy-Hall and Croach's No. 1 Sweeney, 450 ft. NW line, 700 ft. W line of tract, F. R. Hernandez Sur. .. Waiting on cement.
J. M. Russell's No. 1 F. L. Price, 1,500 ft. to N line, 660 ft. W of tract in Angel Navarro Sur. ..... T. D. 1,024 ft. in chalk; shut down for csg.
Snyder, Reeves et al's No. 2 Glasscock, 12 miles NE of San Antonio ..... T. D. 802 ft.; shut down.
Weibacher et al's No. 1 Ernst, 6,400 ft. S line, 900 ft. W line of J. Christopher Sur. ..... T. D. 720 ft.; shut down.
Somerset Syndicate's No. 1 Lagrange, 54 varas from S and W lines of Carrico tract, Sur. No. 48 ..... T. D. 375 ft.; shut down.
J. E. Weatherall and Ben C. Hillman's No. 1 Talley .... Location.
Russell & Moore's No. 2 Mills, 20 ft. S of No. 1, Angel Navarro Sur. ..... T. D. 1,136 ft.; junked and abnd.
Russell & Moore's No. 3 Mills, Angel Navarro Sur. No. 5 ..... T. D. 400 ft.; drlg.
Ueckert et al's No. 1 Palfrey, 1,000 ft. S and W lines of farm ..... T. D. 1,470 ft.; shut down.
S. M. Terrell et al's No. 1 A. Beadom, 1,100 ft. from E line, 12,000 ft. from N line of John Barber Sur. .. Location.
F. W. Tong's No. 1 Willie Sandemer, 150 ft. from NE and SE lines of the N 20 acres of Willie Sandemer 400-ac. tract, Juan Montez Sur. ..... T. D. 1,170 ft.; shut down.
Bowman and Waldrop's No. 1 Ridder, 1,000 ft. from S and W lines of 638-ac. tract, J. M. Sur. ..... T. D. 2,000 ft.; plugged back to 600 ft.; will put on pump.
Waggoner and Stieren's No. 1 S.A.S.I.F., G. Najar Sur.. T. D. 450 ft.; drlg.

CALDWELL COUNTY

Callihan et al's No. 3 W. H. Callihan, 70 ft. N, 65° E of No. 2 ..... T. D. 2,525 ft.; shut down.
Jim Harper's No. 1 Tabor, Pablo Martinez Sur. ..... Derrick.
Blount and Mills' No. 1 McMahan, 275 ft. from SW line, 75 ft. from SE line of 50-ac. tract, J. Pinchback Sur. ..... T. D. 2,200 ft.; putting on pump.

COLORADO COUNTY

Lewis Siegel Drilling Co.'s No. 1 Henderson, 990 ft. from W line, 2,310 ft. from S line, Sec. 1, Blk. 57, T.&P. Sur. ..... Location.
A. H. Eaton et al's No. 1 Sarcek, B. Schneider Sur. .... T. D. 849 ft.; shut down.

COMAL COUNTY

Caldwell & Lanier's No. 1 T. J. Byler, 175 varas from W line, 370 varas from N line of 320-ac. tract in the H.E.&W.T. No. 5,894 Sur. ..... T. D. 600 ft.; standing.

DEWITT COUNTY

Penn Oil Co.'s No. 1 Junker, C N half 20-ac. tract, Pettus Sur. ..... T. D. 6,512 ft.; dry and abnd.
H. T. Roe's No. 1 Leinhardt ..... T. D. 2,170 ft.; shut down.

DUVAL COUNTY

Gulf Prod. Co.'s No. 1 Shaeffer, J. Martinez Sur. ..... T. D. 2,090 ft.; drlg.
Vacuum Oil Co.'s No. 1 Duval County Land Co., Sur. 280 ..... T. D. 3,800 ft.; dry and abnd.

EDWARDS COUNTY

Phillips Pet. Corp.'s No. 2 A. G. Holman, 320 ft. from N and E lines of SE of tract, C.C.S.D.&N.G.R.G. Sur. No. 25 ..... T. D. 7,445 ft.; drlg.
James Dalgish's No. 2 Peterson, 850 ft. N line, 1,100 ft. W line of Sec. 82, Blk. E in the H.E.&W.T. Sur... Location.

FAYETTE COUNTY

Elam & Reynolds' No. 1 Florence, M. Muldoon Sur. No. 13 ..... T. D. 560 ft.; shut down.
Kelly et al's No. 1 Burke ..... T. D. 834 ft.; shut down.

FRIO COUNTY

A. H. Wray's No. 1 Burns estate, 700 ft. N, 330 ft. E of C Sec. 123, Antone Hupzor ..... T. D. 3,708 ft.; bailing.

GOLIAD COUNTY

A. G. Riemenschneider's No. 1 A. T. Fromme, 275 ft. from N line, 912 ft. W line of 300-ac. tract, P. Dexter Sur. ..... T. D. 2 320 ft.; shut down.
Gibson Oil Co.'s No. 1 Cyrus Parks, 3,000 ft. S and 2,500 ft. E of NW cor. of Parks ranch, Ferguson Sur. ..... T. D. 5,104 ft.; standing.
T. B. Slick's No. 1 Poetter, 1,500 ft. from SW line, 900 ft. from SE line of 591-ac. tract, Obid Marshall Sur. ..... T. D. 4,213 ft.; shut in for storage.
T. B. Slick's No. 1 Allen, Obid Marshall Sur. ..... Rigging up.
Union Producing Co.'s No. 28 Ray, 150 ft. S and 800 ft. from W lines of 416-ac. tract ..... T. D. 2,650 ft.; drlg.

GONZALES COUNTY

Andibus & Cummings' No. 1 R. D. and J. C. Miller, 523 ft. from S line, 1,000 ft. from E line, Ann Williams Sur. ..... T. D. 2,550 ft.; shut down.
Acme Oil & Royalty Corp.'s No. 1 H. K. Weber, 2,525 ft. from NW line, 2,250 ft. from SW line, Wright Sur. ..... T. D. 2 560 ft.; shut down.
Weal Oil Co.'s No. 1 Martin, 360 ft. SE line and SW line of tract, Thomas Moore Sur. ..... T. D. 2,650 ft.; drlg.
United North & South's No. 2 Wells, 1,250 ft. SW of No. 1 ..... T. D. 4,890 ft.; drlg.

GUADALUPE COUNTY

O. K. Emerson's No. 1 C. A. Phillips, center of 80-ac. tract Velda Sur. ..... Rigging up.
Jones and Erwin's No. 1 O. Forrester, 2,700 ft. from NE cor., 450 ft. from NW line, O. Forrester tract, Pate Sur. ..... T. D. 707 ft.; shut down.
Jones and Erwin's No. 1 Hoese, 150 ft. each way out of NE cor. of 200-ac. tract, J. Leal Sur. ..... T. D. 691 ft.; shut down in Edwards.
Luling Oil & Gas Co.'s No. 1 Nixon, E of Darst Creek, L. W. Alexander Sur. ..... Moving in rig.

HAYS COUNTY

Hailey & Whittington's No. 1 Heidenrich, 4,900 ft. from NW line, 400 ft. from NE line of farm, Hemphill Sur. ..... T. D. 2,427 ft.; shut down.
San Marcos Oil & Gas Co.'s No. 1 A. H. Alford ..... T. D. 513 ft.; waiting on cement.

JIM HOGG COUNTY

J. D. Pulliam's No. 1 Jones, 1,020 ft. W line, 1,020 ft. S line, Share 5-A, Hinojosa Sur. ..... T. D. 2.888 ft.; standing.
P. H. Wilson's No. 1 Edds, Sur. 210 ..... T. D. 3,360 ft.; abnd.

JIM WELLS COUNTY

Prairie Lea Prod. Co.'s No. 1 Oppenheimer ..... T. D. 520 ft.; shut down.
Smith Clark Co.'s No. 1 Cuero Cattle Co. ..... Location.
Stewart and Blair's (E. W. Ogden) No. 1 Farris ..... T. D. 2,615 ft.; reinstated; cleaning out to deepen.

KARNES COUNTY

J. F. Morrissey et al's No. 1 Rigsdale, 660 ft. SW of C of NE line of 176-ac. farm in the McCoull Sur. ..... T. D. 2.000 ft.; standing.
A. Edmiston's No. 1 Cochran, 150 ft. from S line, 500 ft. from E line of tract, D. B. McConnell Sur. ..... T. D. 1,010 ft.; standing.
Hurlbut et al's No. 1 Newberry, 450 ft. SE and SW line of Newberry 428-ac. tract, Carlos Martinez Sur. .... T. D. 2,975 ft.; show gas.

KENDALL COUNTY

Borgett et al's No. 1 Haag, W. Avery Sur. ..... T. D. 1.010 ft.; drlg.
Sitten et al's No. 1 Garvin, C of NE of D. L. Richardson Sur., in the D. L. Richardson Sur., 1 mile NE from Kendalia ..... T. D. 1,130 ft.; drlg.
Dixon Oil Co.'s No. 1 Ottmer Behr, W of H.T.&B.R.R. Sur., 3¼ miles SE from Sisterdale ..... T. D. 2,410 ft.; drlg. lime.
P. B. Sterling's No. 1 R. J. McCrocklin, 1,350 ft. from N line, 250 ft. from W line of the B. G. Owens Sur., 4 miles W from Kendalia ..... T. D. 1,600 ft.; shut down.
R. M. Perkins' No. 1 J. Lawhorn, Sec. 10, 2,475 ft. E line, 1,488 ft. S line ..... T. D. 706 ft.; drlg.
Permian Oil Co.'s No. 1 Taylor, Sec. 18, G.B.&G. Sur. .... T. D. 100 ft.; shut down.

KERR COUNTY

Evans et al's No. 1 Love Ranch, 100 ft. from S line Sur. 1,597, 1,000 ft. E of W line of J. Martines No. 1,594 Sur. ..... T. D. 3,391 ft.; resetting csg.
Evans and Gant's No. 1 Selker-Mears, C.C.S.D.&R.G. N.G. Sur. No. 1,605 ..... Rigging up.
Evans and Gant's No. 1 E. Young, A. E. Burge Sur. No. 23 ..... Location.

KINNEY COUNTY

Magnolia Pet. Co.'s No. 1 Whitehead-Wardlaw, 2,640 ft. W line and S line of Melton Valdez grant ..... T. D. 5,030 ft.; drlg.
Mardon Oil Co.'s No. 2 Jim Clamp ..... T. D. 1,389 ft.; standing.

KIMBLE COUNTY

C. L. Bryant et al's No. 1 Lambert, 7,700 ft. N and W lines of F. Lotta Sur. ..... T. D. 850 ft.; standing.
Kamon et al's No. 1 Hodges ..... T. D. 2,170 ft.; drlg.

LASALLE COUNTY

Fred W. Vais' No. 1 Coleman, 200 ft. from S and E lines of SW Sec. 514, B.S.&F. Sur. ..... T. D. 40 ft.; standing.

LAVACA COUNTY

Cranfill & Reynolds' No. 1 Hermes, William Ryan Sur...T. D. 1,500 ft.; drlg.
Newton Oil Co.'s No. 1 Reeves, cor. of S line of Reeves tract, John Hueser Sur. .....T. D. 3,340 ft.; fishing.

LIVE OAK COUNTY

Jacob, Buzzini & Pickett, Inc.'s No. 1 C. E. Kay in the Bridget Fadden Sur., 3 miles E from George West ..T. D. 3,400 ft.; shut down.
Houston Oil Co.'s No. 3 Dunning, 330 ft. from NE line and 2,800 ft. from SE line of tract, M. B. Kilvin Sur...Moving in derrick.
Houston Oil Co.'s No. 1 D. W. Snyder, 630 ft. from S line, 150 ft. from E line of Snyder tract, T. E. Garner Sur. .....T. D. 5,386 ft.; coring.
Illinois Exploration Syndicate's No. 1 Reeves-Brown, 1,300 ft. S of Sellars tract, 1,800 ft. E of Ry. .....T. D. 2,145 ft.; shut down.
Sid Keoughan's No. 1 C. E. Terrell, 6,000 ft. from N line, 1,000 ft. from E line, Dan O'Boyle Sur. .....T. D. 2,840 ft.; shut down.

LEE COUNTY

Burt et al's (M. D. Rickett) No. 1 R. C. Sanders .....T. D. 3,124 ft.; shut down.
Marts et al's No. 1 Thomas .....T. D. 2,600 ft.; dry and abnd.
A. H. Wheeler and associates' No. 1 fee, Blk. 47, H. Donohue Sur. .....T. D. 2,209 ft.; shut down.

McLENNAN COUNTY

C. E. Groone et al's No. 1 League .....T. D. 932 ft.; shut down.
W. L. Murrel et al's No. 1 Hixon .....T. D. 775 ft.; shut down.

McMULLEN COUNTY

Mogul Pet. Co.'s No. 1 Martin, 150 ft. NW line, 150 ft. to SW line of E. Melon No. 213 Sur. .....T. D. 632 ft.; standing.
Sheree, Brodie and Emick's No. 1 Shiner, Henry Brewer Sur. .....T. D. 1,300 ft.; drlg.

MAVERICK COUNTY

Ryeade Oil Corp.'s No. 6 Chittim, 1,445 ft. from S, 320 ft. from W of Sec. 7, I.&G.N. Sur. .....T. D. 3,900 ft.; drlg.
Ryeade Oil Corp.'s No. 5 Sullivan, in C of Sec. 83, Blk. 7, in the I.&G.N. Sur. .....T. D. 7,449 ft.; drlg.
Texas Gas Utilities Co.'s No. 7 Chittim, 5.70° E, 1,845 ft. from No. 3, I.&G.N. Sur. .....T. D. 3,015 ft.; fishing.

MEDINA COUNTY

National Oil Co.'s No. 1 Howard, 1,750 ft. E of W line, 1,854 ft. N of S line of survey in the John George Sur. No. 9, 10 miles S of Dunlay .....T. D. 2,561 ft.; coring.
J. H. Hickey's No. 1 Oden, H. Castro Sur. No. 175 .....Spudded.
Donaldson Oil & Gas Co.'s No. 2 Adams .....Derrick.
C. H. Florian et al's No. 1 Henry Meyer .....T. D. 200 ft.; drlg.
Caldwell et al's No. 1 L. W. Burrell .....T. D. 518 ft.; standing.
M. Eskridge et al's No. 1 Medina Valley Irrigation ....T. D. 350 ft.; drlg.
Pat Armstrong's No. 1 Crawford, 1,389 ft. N line, 2,550 ft. E line of survey, 487.6 miles W of Devine .....T. D. 2,789 ft.; shut down.

MILAM COUNTY

Rheubotham & Tate's No. 1 Johnson, 325 ft. from N line, 350 ft. from W line of 40-ac. tract, D. Robinson Sur. .....T. D. 1,475 ft.; shut down.
Masters and Pomeroy's No. 1 Pieper, J. J. Acosta Sur. ..T. D. 40 ft.; set surface csg.
Kyser, Roberts & Dibble's No. 2 Ward .....T.D. 2,810 ft; drlg.
J. E. McKee et al's No. 1 Littleton, 150 ft. from N and 225 ft. from W lines of lease, C. Chevallier Sur. ....T. D. 100 ft.; shut down.
G. I. Moore's No. 1 Davis .....T. D. 2,147 ft.; shut down.
Peggie Bros.' No. 1 M. Reed .....T. D. 650 ft.; shut down.
Service Oil & Gas Co.'s No. 1 H. G. Hensley, 500 ft. from NW line, 400 ft. from NE line of 50-ac. tract, Valdez Sur. .....T. D. 3,180 ft.; standing.

NUECES COUNTY

Grimm et al's No. 1 William Baur .....T. D. 4,110 ft.; drlg.
H. H. Weinert's No. 1 Mohle, 450 ft. from S line, 450 ft. from W line, Sec. 94, Bishop Subd., Palo Alto lands .....T. D. 2,500 ft.; drlg.

REAL COUNTY

Evans & Sprinkle's No. 1 J. M. Auld, H.E.&W.T. Sur. No. 15 .....T. D. 425 ft.; drlg. lime.
McGinley Corp.'s No. 1 Haby, C of SW Sec. 175 .....T. D. 400 ft.; setting 15¼-in. csg.
Gant-Kilgore and Evans' No. 1 A. D. Auld, C.C.S.D.& R.G.N.G. Sur. No. 33 .....Moving in rig.

STARR COUNTY

Lee Olmos Oil Co.'s No. 3 Kelsey-Bass, Blk. 6, Porcion 77 .....T. D. 269 ft.; standing.
Kush and Duerkson's No. 1 Kelsey-Bass, Blk. 9, Porcion 75, Carmargo Sur. .....Drlg. 830 ft.
Menyard et al's No. 1 Sealbury, 150 ft. from E line, 6,550 ft. from N line, Share 5, Porcion 75, Jurisdiction of Carmargo .....T. D. 349 ft.; set 8-in. csg.

SAN PATRICIO COUNTY

George B. Pickett's No. 1 Baldwin, 900 varas due E of Denton, 1,200 ft. S of the SE cor. of O'Neill Sur., Abstract 211 .....T. D. 4,020 ft.; shut down.
Cosden Oil Co.'s No. 1 Powell, 330 ft. E line of 36-ac. tract in Sec. 32, Paul Subd., Coleman-Fulton Pasture Lands .....T. D. 4,705 ft.; dry and abnd.
Saxet Oil Co.'s No. 1 Carrol, 3 miles N of Gregory .....Derrick.

TRAVIS COUNTY

Fort Bend Oil Co.'s No. 1 Engleman, 450 ft. N line, 150 ft. W line of 108-ac. tract, J. H. Denson Sur. ....T. D. 874 ft.; drlg.
Bohls and Wilson's No. 1 Norton, J. Cole Sur. .....Derrick.
H. R. Marts' No. 1 Voelker, 150 ft. N line, 150 ft. W line of tract, L. Kimbro Sur. .....T. D. 1,508 ft.; drlg.

UVALDE COUNTY

Phantom Oil Co.'s No. 1 Claudt, Sec. 611 .....T. D. 2,710 ft.; shut down.
Waldrop & Welch's No. 1 E. R. Edmonds, 1,750 ft. NW, 7,200 ft. W of Sec. 71, in the A. Gomes Sur., 8 miles S of Uvalde .....T. D. 1,610 ft.; running csg.

VICTORIA COUNTY

Newton et al's No. 1 West .....T. D. 1,550 ft.; standing.
The Texas Company's No. 2 McFadden, C. M. Boyd Sur...Derrick.

WEBB COUNTY

Usher Carson et al's No. 3 Benavides, 150 ft. from S and W lines of Blk. 7, Sur. 1,613 .....T. D. 600 ft.; standing.
O. W. Killam's No. 1 Bruni, 2,490 ft. from E line, 1,170 ft. from S line of Sur. No. 77 .....T. D. 2,955 ft.; drlg.

WILSON COUNTY

Ryeade Oil Corp. and Getty Petroleum Co.'s No. 1 J. A. Johnson, 150 ft. from N line, 600 ft. E of railroad tract, Jose de Balmaseda Sur. .....T. D. 3,280 ft.; abnd.
Stover and Wren's No. 1 John Rouse, 10,400 ft. from SW line, 2,300 ft. from NW line, O. A. Trevino Sur. No. 19 .....T. D. 1,100 ft.; fishing.

ZAPATA COUNTY

T. H. Ward's No. 1 Uribe, 150 ft. NW line, 150 ft. SW line, Blk. 8 Subd., Share 7, Partition No. 6, T. Uribe Partition of Jose V. Borrego Sur. .....Rigging up.
John Poppas Pool, Inc.'s No. 1 Flores, 2,977 ft. SE line, 6,000 ft. Rio Grande River, Porcion 35 .....Rigged up.
B. F. Nixon's No. 1 A. Guiterres, 170 ft. S line, 332 ft. E line, Lot 5, Blk. 5, Partition 10, Borrego grant.....T. D. 50 ft.; standing.
O. W. Killam's No. 3 Slator, Borrego grant .....T. D. 2,050 ft.; drlg.
John J. O'Hern's No. 2 Benavides, Villa grant .....T. D. 850 ft.; drlg.
Penny Prod. Co.'s No. 1 Juan V. Cuellar, Jr., et al, 175 ft. NE line, 175 ft. SE line Poppas Subd., Porcion 33 and 34, Blk. 1, Sur. 3 .....T. D. 1,929 ft.; standing.
William Marks' No. 1 Flores, Blk. 36, Porcion 37 .....T. D. 2,002 ft.; standing.
National Oil Co.'s No. 1 Luther, 617 ft. NW line, 96 ft. NE line, Blk. 97, De Prom Subd., Porcion 6 .....T. D. 380 ft.; standing.
National Oil Co.'s No. 2 Adams, 150 ft. from NW line and SW line, Blk. 11, Borrego grant .....Location.
Mackenzie and Talmadge's No. 1 Trevino, 400 ft. SE line, 200 ft. NE line, Blk. 6, Sur. No. 4, Porcion 2 and 3 .....T. D. 562 ft.; shut down.

ZAVALA COUNTY

Carl Cromwell's No. 1 Whitecotton, C of NW Sec. 1, A.P.&M. Sur. .....Location.
F. W. Weigand's No. 1 Gates, 1,320 ft. from N line, 330 ft. from NE cor., Sur. No. 13 .....T. D. 2,215 ft.; shut down.

GULF COAST FIELDS AND WILDCATS

(Continued from Page 44)

HUMBLE—HARRIS COUNTY

John Deering's No. 1 Graff (workover) .....Heaving shale 5,634 ft.; drill stem stuck; sidetracking in shale 4,331 ft.
Dunbar & Deering's No. 2 Bennett (workover) .....Rigging up to deepen; formerly comp. 50 bbls. 4,069 ft.
LaRue, trustee's No. 1 Crane, northwest .....Derrick.
M. La Rue's No. 1 Tuffly, northwest .....Gumbo 1,405 ft.; shut down.
Southern Coastal Oil Co.'s No. 2 Perkins .....Standing sand and shale 2,752 ft.
Sun Oil Co.'s No. 19 Bender .....Drlg. shale 4,500 ft.
Sun Oil Co.'s No. 1 Beck, west flank .....Drlg. sand 1,479 ft.
Trapshooter Oil Co.'s No. 3 Rosenbaum .....Put on pump 4,067 ft.; sanded up; cleaning hole.
Trapshooter Oil Co.'s No. 10 Neil, northwest .....Salt 1,806 ft.; losing returns.

PIERCE JUNCTION—HARRIS COUNTY

Gulf Prod. Co.'s No. 2 Manchester Corp. .....Drlg. gumbo 4,151 ft.
Kipley Oil Co.'s No. 1 Prudential (workover) .....Deepened from 3,857 to 4,329 ft.; set 30 ft. 4½-in. screen; comp. flowing 1,200 bbls. on ½-in. choke; 410 lbs. pressure; gravity 29.4 at 58°.
Kipley Oil Co.'s No. 2 Prudential, northwest side.....Location.
Smith and associates' No. 1 Parsons (workover).....Total depth 4,627 ft.; comp. pumping 40 bbls. 4,229 ft.
Navarro Oil Co.'s No. 2 Perry .....Drlg. hard lime 2,097 ft.
Rio Bravo Oil Co.'s No. 10-B Settegast (workover).....Drlg. salt 3,925 ft.
Superior Oil Corp.'s No. 2 Boyles .....Set 43 ft. 4½-in. screen 4,305 ft.; comp. flowing 725 bbls., ¾-in. choke, pressure 410 lbs., gravity 27.2° (cor.) T. 76°.

BIG CREEK—FORT BEND COUNTY

Gulf Prod. Co.'s No. 61 Davis .....Drlg. sandy shale 3,879 ft.

LOST LAKE—CHAMBERS COUNTY

Pure Oil Co.'s No. 5 Lost Lake .....Drlg. salt 6,463 ft.; top of salt 6,280 ft.

SPINDLETOP—JEFFERSON COUNTY

Yount Lee Oil Co.'s No. 53 McFaddin (workover).....Total depth 5,225 ft.; milling out 3,096 ft.
Yount Lee Oil Co.'s No. 122 McFaddin (workover).....Total depth 4,753 ft.; sidetracked 4,345 ft. and drlg. water sand 4,463 ft.
Yount Lee Oil Co.'s No. 145 McFaddin .....Drlg. shale and lime 4,827 ft.

NORTH DAYTON—LIBERTY COUNTY

Harrison Oil Co.'s No. 4 Quintette (workover) .....Total depth 6,077 ft. in salt; sidetracked and drlg. sticky shale 5,556 ft.

HIGH ISLAND—GALVESTON COUNTY

Marrs McLean's No. 12 Cade (workover) .....Total depth 4,552 ft.; twisted off; trying to sidetrack.
Marrs McLean's No. 20 Cade .....Rig standing.

ORCHARD—FORT BEND COUNTY

Gulf Prod. Co.'s No. 28 Moore .....Drlg. 329 ft.

HULL—LIBERTY COUNTY

The Texas Company's No. 4 Barrow .....Drlg. sticky shale 4,162 ft.

CLAY CREEK—WASHINGTON COUNTY

Sun Oil Co.'s No. 3 Elman .....Drlg. lime rock 1,293 ft.
Sun Oil Co.'s No. 4 Janner .....Drlg. salt 5,072 ft.; top of salt 3,865 ft.
Sun Oil Co.'s No. 1 Freeman .....Total depth 3,638 ft. in salt; plugged to sand 1,990 ft.
Sun Oil Co.'s No. 2 Marcus, J. F. Perry Sur., 300 ft. from N line and 203 ft. from E line of tract.....Rig.

ESPERSON—LIBERTY COUNTY

Cranfill-Reynolds' No. 18 Esperson .....No report.
Cranfill-Reynolds' No. 8 Moores Bluff .....No report.
Cranfill-Reynolds Oil Co.'s No. 1-C Kirby fee .....Drlg. sand and shale 4,577 ft.

HANKAMER—LIBERTY COUNTY

Gulf Prod. Co.'s No. 1 Ezzel .....Oil sand 7,095 ft.; cmtd. csg. to test.
Gulf Prod. Co.'s No. 11 Boyt .....Drlg. hard sand showing oil 3,787 ft.

BOLING—WHARTON COUNTY

C. S. Thomas' No. 1 Volney .....Standing shale 535 ft.

SARATOGA—HARDIN COUNTY

Rio Bravo Oil Co.'s No. 108-A Cotton .....Set screen to test 457 ft.; comp. flowing 21 bbls. first 14 hours.

MOSS BLUFF—LIBERTY AND CHAMBERS COUNTIES

Gulf Production Co.'s No. 3 McFaddin, east flank.....Drlg. sand 4,229 ft.
Humble Oil & Ref. Co.'s No. 2 Breeding, northwest flank..Rigging up.
Humble Oil & Ref. Co.'s No. 7 Sterling, east flank.....Drlg. gumbo 2,038 ft.
Humble Oil & Ref. Co.'s No. 1 Sergent, northwest flank (workover) .....Comp. pumping 150 bbls. 5,860 ft.
Texas Gulf Sulphur Co.'s No. 1 Carter (Sulphur test)....Drlg. sand rock 1,716 ft.
Humble Oil & Ref. Co.'s No. 2 Sergeant, east flank.....Rig.
Shell Petroleum Corp.'s No. 2 Herff, southeast flank.....Drlg. hard shale 6,650 ft.

REFUGIO—REFUGIO COUNTY

Houston Oil Co.'s No. 14 Pratt-Hewitt-Rooke .....Sand and shale showing oil 3,727-48 ft.; to make drill stem test.
Houston Oil Co.'s No. 2 Rea (workover) .....Total depth 3,683 ft.; to plug back.
Houston Oil Co.'s No. 4 Mrs. M. H. Ryals .....Drlg. gumbo 3,618 ft.
Houston Oil Co.'s No. 13 F. V. W. Heard .....Drlg. lime and shale 3,510 ft.
Houston Oil Co.'s No. 1 Rooke .....Sand 6,197-6,205 ft.; set 22 ft. screen; swabbing.
Houston Oil Co.'s No. 1 Doughty .....Sand 6,452-65 ft.; set 23 ft. screen; tested salt water; pulling screen.
Houston Oil Co.'s No. 1 O'Connor .....Total depth 5,913 ft.; swabbed dry; pulling screen to deepen.
Houston Oil Co.'s No. 3 Rose Lambert .....Rigging up.
Houston Oil Co.'s No. 1 O'Brien (D.D.), Blk. 5.....Pulling screen to deepen 5,427 ft.
Ed. Jones' No. 1 Kelly, Blk. 106 .....Oil sand 6,451-54 ft.; cmtd. 6⅝-in. csg. 6,451 ft.
Ed Jones' No. 3 Mitchell, 200 ft. SW Mission River and 200 ft. SE of road in Blk. 13 .....Drlg. shale and lime 3,731 ft.
Luling Oil & Gas Co.'s No. 1 City, Blk. 86 .....Cmtd. 12½-in. csg. 1,067 ft.
Luling Oil & Gas Co.'s No. 1 City, Blk. 105 .....Drlg. sand showing oil 6,443 ft.
Moody-Seagraves-Karona's No. 1 F. Rayser .....Drlg. shale 6,142 ft.
Moody-Seagraves Prod. Co.'s No. 6 Morgan-O'Connor ....Drlg. gumbo 3,253 ft.
Moody-Seagraves Prod. Co.'s No. 7 O'Connor .....Cmtd. 12½-in. csg. 1,268 ft.
Moody-Seagraves-Phillips' No. 2-A J. F. B. Heard .....Rig.
Moody-Seagraves and Phillips Pet. Co.'s No. 3-B J. F. B. Heard .....Tested salt water 3,661 ft.; pulling screen.
Moody-Seagraves and Phillips Petroleum Co.'s No. 2 Mercy Academy, 167 ft. from N line and 666 ft. from E line of tract .....Rig.
Moody-Seagraves' No. 1-B O'Brien .....Drlg. shale and lime 5,605 ft.
Moody-Seagraves Prod. Co.'s No. 3-A O'Brien .....Oil sand 6,447-59 ft.; set 23½ ft. screen; comp. flowing 1,008 bbls., ¼ and ⅝-in. chokes; working pressures 1,150 lbs. on tubing and 1,200 lbs. on casing.
Moody-Seagraves Prod. Co.'s No. 1 Strauch, Blk. 64 (workover) .....Drlg. shale 6,412 ft.
T. P. Morgan's No. 1-B St. John heirs, 200 ft. from N line and 1,558 feet from E line of lease .....Drlg. shale 3,340 ft.
Saxet Oil Co.'s No. 6-A W. Heard (workover) .....Broken sand and shale 3,661-76 ft.; tested 800 lbs. pressure dry gas; to deepen.
Saxet Oil Co.'s No. 1 L. H. Johnson, Blk. 11 .....Location.
Sun Oil Co.'s No. 3 Rea .....Deepened from 3,651 ft. to 3,663 ft.; making drill stem test.
L. L. Smith's No. 2 Rogers, James Power Sur. .....Coring shale 4,873 ft.
Traylor, Rutherford & Traylor's No. 1 Rogers heirs, James Powers Sur. .....Salt water sand 3,703 ft.; shut down.

United Prod. Corp.'s No. 3 Fox (workover) ..... Drlg. hard sand 4,110 ft.
United Prod. Corp.'s (Union) No. 11 Fannie Heard ..... Coring sand 4,938 ft.
United Prod. Corp.'s (Union) No. 12 Fannie Heard ..... Location.
United Prod. Corp.'s (Union) No. 2 Moss-Powers, Blk. 109. Derrick.
United Prod. Corp.'s (Union) No. 5 O'Brien (workover).. Oil sand 6,451-57 ft.; cmtd. 5 3/16-in. csg. 6,448 ft.; drlg. plug to set screen.
United Prod. Corp.'s (Union) No. 7 O'Brien, Blk. 85 ..... Oil sand 6,452-57 ft.; cmtd. 5 3/16-in. csg. 6,450 ft.
United Prod. Corp.'s (Union) No. 8 O'Brien ..... Drlg. sticky shale 6,237 ft.
United Prod. Corp.'s (Union) No. 8 Powers, Blk. 82 ..... Drlg. sand and shale 6,392 ft.
United Prod. Corp.'s (Union) No. 6 Nancy J. Ryals ..... Oil sand 3,644-54 ft.; cmtd. 8¼-in. csg. 3,643 ft.
United Prod. Corp.'s (Union) No. 2-A Rose Lambert, 200 ft. out of SE cor., Blk. 1, of town tract ..... Location.
United Prod. Corp.'s (Union) No. 1 Shelton ..... Oil sand 6,443-47 ft.; cmtd. 6⅝-in. csg. 6,443 ft.
United Prod. Corp.'s (Union) No. 5 Mitchell ..... Oil sand 6,431-46 ft.; cmtd. 5 3/16-in. csg. 6,432 ft.; drilled plug and set 18 ft. screen; swabbing.

SOUTH LOUISIANA FIELDS
LOCKPORT—CALCASIEU PARISH

Union Sulphur Co.'s No. 2 Martha Moss ..... Spudded.
Vacuum Oil Co.'s No. 9 Bordages ..... Drlg. gumbo 3,293 ft.
Vacuum Oil Co.'s No. 8 Farquahar ..... Oil sand 5,365 ft.; cmtd. 9⅝-in. csg. 5,340 ft.
Vacuum Oil Co.'s No. 12 Miller (workover) ..... Total depth 4,421 ft.; milling out to sidetrack screen 3,429 ft.
Vacuum Oil Co.'s No. 28 Miller ..... Total depth 5,623 ft.; sidetracked to sandy shale showing oil 3,861 ft.; set 1 jt. screen; comp. flowing 600 bbls. fluid, 75% oil, on ¼-in. choke.
Vacuum Oil Co.'s No. 31 Miller ..... Oil sand 3,872 ft.; cmtd. 9⅝-in. csg.

EDGERLY—CALCASIEU PARISH

Associated Oil Co.'s No. 5 Paraffine ..... Drlg. sand and shale 3,554 ft.
Rex Petroleum Co.'s No. 8 Hunter ..... Drlg. hard sand 3,490 ft.
Rex Petroleum Corp.'s No. 2 Prairie Narroni, Sec. 21-9s-11w, 365 ft. from S line and 50 ft. from E line of lease ..... Derrick.

HACKBERRY—CAMERON PARISH

Calcasieu Oil Co.'s No. 25 Watkins ..... Sand showing oil 2,837-47 ft.; set 1 jt. 4½-in. screen; comp. flowing 1,050 bbls. on ½-in. choke. 170 lbs. pressure.
Calcasieu Oil Co.'s No. 9 Valery ..... Total depth 3,137 ft.; plugged to 2,148 ft.; cmtd. 4½-in. csg.; to test sand 2,131-38 ft.
R. E. Seiss' No. 2 J. M. Vincent ..... Shut down 510 ft.
The Texas Company's No. 8 State ..... Derrick.
Yount Lee Oil Co.'s No. 34 State ..... Location.
Yount Lee Oil Co.'s No. 36 State ..... Location.
Yount Lee Oil Co.'s No. 37 State ..... Location.
Yount Lee Oil Co.'s No. 38 State ..... Location.
Yount Lee Oil Co.'s No. 39 State ..... Location.

JENNINGS—ACADIA PARISH

Yount Lee Oil Co.'s No. 9 Housierre Latrielle ..... Sand showing gas and oil 8,653 ft.; tried to blow out while running csg.

VINTON—CALCASIEU PARISH

Vinton Pet. Co. (Lucky Ten) No. 1 Lizzo ..... Total depth 3,326 ft.; set 4½-in. liner 3,070 ft.
Vinton Pet. Co.'s No. 10 Matilda Gray (workover) ..... Set 35 ft. 4½-in. strainer 2,664 ft.; bailed dry; standing.
Wilson-Broach's No. 6 Wilson ..... Set 1 jt. 4½-in. screen 3,319 ft.; comp. flowing 190 bbls. oil daily.
Wilson-Broach's No. 7 Wilson ..... Sand showing oil 3,345 ft.; set 6⅝-in. csg.

BAYOU BOUILLON—ST. MARTIN PARISH

Humble Oil & Ref. Co.'s No. 1 Woodyard Lake ..... Total depth 6,061 ft.; sidetracking hard sandy lime 5,189 ft.
Humble Oil & Ref. Co.'s No. 4 State ..... Total depth 4,477 ft.; sidetracking in sand and lime 4,085 ft.

SWEET LAKE—CAMERON PARISH

Magnolia Pet. Co.'s No. 2 Sweet Lake, Sec. 5-13s-7w ..... Building derrick.
Pure Oil Co.'s No. 10 Yount Lee ..... Drlg. hard sand and lime 5,735 ft.

PORT BARRE—ST. LANDRY PARISH

Gulf Ref. Co.'s No. 4-A Hoskins ..... Sandy shale showing oil 3,603 ft.
The Texas Company's No. 9 Botney Bay ..... Spudded and standing.

STARKS—CALCASIEU PARISH

Gulf Ref. Co.'s No. 26 Lutcher-Moore ..... Cap rock showing oil 1,204-05 ft.; rigging up to pump.

SORRENTO—ASCENSION PARISH

Gulf Refining Co.'s No. 19 United Land Co. ..... Rigging up.

SULPHUR—CALCASIEU PARISH

Union Sulphur Co.'s No. 749 Fee (workover) ..... Reset 2 jts. 4½-in. screen 4,154 ft.
Union Sulphur Co.'s No. 762 Fee (workover) ..... Drlg. rock 4,939 ft.

MISCELLANEOUS WILDCATS
TEXAS
AUSTIN COUNTY

Arkansas Natural Gas Co.'s No. 1 Machemehl ..... Drlg. shale 4,349 ft.
Empire Gas & Fuel Co.'s No. 1 Kuntze, San Felipe ..... Drlg. sandy shale 5,772 ft.
O'Hara et al's No. 1 Schrader ..... Shut down 3,342 ft.

BRAZORIA COUNTY

The Texas Company's No. 1 Ewin, Harvey Little Sur..... Total depth 7,584 ft.; sidetracking at 7,152 ft.
Mills Bennett Prod. Co.'s No. 3 Allen, Allen ..... Drlg. cap rock 1,424 ft.
Mills Bennett Prod. Co.'s No. 2 Reece, Allen ..... Drlg. sand 3,190 ft.
Mills Bennett Prod. Co.'s No. 2 Random, Allen ..... Drlg. sandy shale 3,837 ft.
Faust et al's No. 5 Faust ..... Drlg. sticky shale 6,112 ft.
Freeport Sulphur Co.'s No. 2,001 fee, Bryan Heights..... Drlg. hard sand 4,887 ft.
Layne et al's No. 7-A Wisdom, Damon Mound ..... Drlg. shale and lime 3,075 ft.
Amerada Pet. Corp.'s (Rycade) No. 2 Seaburn, Stratton Ridge ..... Drlg. shale 6,090 ft.
Steel & Strickland's No. 1 Lockbridge ..... Spudded and shut down.
United Oil Syndicate's No. 1 Speer, A. A. Talmadge Sur.. Shut down 732 ft.

BURLESON COUNTY

Mid-South Oil Co.'s No. 1 Duckworth ..... Drlg. sandy shale 2,601 ft.

CALHOUN COUNTY

The Texas Company's No. 1 Smith, J. Timmons Sur., Will Mousin and Driscoll Sub. ..... Spudded.

CHAMBERS COUNTY

Chicago Oil Corp.'s No. 1 Lawrence ..... Shut down 5,020 ft.

COLORADO COUNTY

A. H. Eaton et al's No. 1 A. R. Surcek ..... Shut down in shale 1,220 ft.

FORT BEND COUNTY

Long Point Oil Co.'s No. 1 Texas-Gulf fee, H.&T.C. Sur... Reset screen 633 ft.; bailing.

GRIMES COUNTY

Deering & Noble's No. 1 Templeton, 6 miles south of Navasota ..... Shale 3,680 ft.; reaming.

HARDIN COUNTY

D. O. Speight's No. 1 fee, near Batson ..... Shut down in gumbo 3,350 ft.

HARRIS COUNTY

Gulf States Oil Co.'s No. 1 Angsperger ..... Shut down 3,928 ft.
Humble Oil & Ref. Co.'s No. 1 Gehring, Mykawa..... Sand 4,873 ft.; 30 ft. 7-in. (O.D.) screen set with csg. 4,870 ft.; swabbing; fluid 800 ft. from top.
Humble Oil & Ref. Co.'s No. 4 Minnetex, Mykawa..... Drlg. sand 5,411 ft.
Humble Oil & Ref. Co.'s No. 5 Minnetex, Mykawa, 150 ft. from S line and 200 ft. from W line, Lot 251, Wm. Lovett Sur. ..... Location.
Midway Oil & Royalty Co.'s No. 1 Warren, Hockley, 2,230 ft. from S line and 1,575 ft. from W line of Sur. ..... Location.
Sloane Prospecting Co.'s No. 1 Ulrich, Cedar Bayou..... Drlg. gumbo 3,398 ft.

JACKSON COUNTY

Chicago-Gulf Co.'s No. 1 Rogers (workover) ..... Rig up to deepen 3,662 ft.
Chicago-Gulf Co.'s No. 2 Lee ..... Total depth 4,147 ft.; set 1 jt. screen 4,105 ft.; estimated 25,000,000 ft. gas, 1,800 lbs. pressure.
Warner-Quinlan's No. 1 Hungerford, Henry Smith Sur... Drlg. sandy shale 3,043 ft.

JEFFERSON COUNTY

Humble Oil & Ref. Co.'s No. 1 McFaddin, T.&N.O. Sur. 234. Drlg. gumbo 2,653 ft.
Keith et al's No. 1 Reed-Hankamer ..... Drlg. gumbo 2,836 ft.
The Texas Company's No. 4 Pipkin, Big Hill ..... Total depth 4,123 ft.; sidetracking in rock 3,544 ft.

LIBERTY COUNTY

Hamm et al's No. 1 Harvard, Davis Hill ..... Gumbo 1,015 ft.; shut down.
J. R. Ingram's No. 1 Hornbeck, Clayton, Harper Sur.... Drlg. water sand 2,459 ft.
Tucker et al's No. 1 Bell, H.&T.C. Sur. No. 4 ..... Gumbo 560 ft.; shut down.

MATAGORDA COUNTY

H. C. Cockburn's No. 3 Hawkins, Shepherds Mott..... Total depth 5,244 ft.; sidetracking in shale 4,700 ft.
Empire Gas & Fuel Co.'s No. 1 Boker, Citrus Grove..... Total depth 6,295 ft.; to sidetrack 5,443 ft.

MONTGOMERY COUNTY

Lake Creek Oil Co.'s No. 1 Hunt, south of Conroe..... Shut down 678 ft.; gumbo.
Price & Whitehead's No. 2 Guerges ..... Shut down 2,956 ft.

NACOGDOCHES COUNTY

E. L. Burk et al's No. 1 Latimer, Jose De Los Santos Sur. ..... Shut down 4,225 ft.

ORANGE COUNTY

Gulf Production Co.'s No. 1 Miller Vidor Lbr. Co., E. Lewis Sur. No. 385 ..... Drlg. gumbo 3,167 ft.
Crew Oil Co.'s No. 1 Mansfield ..... Drlg. sand and shale 1,479 ft.

POLK COUNTY

Sunshine Oil Co.'s No. 1 Collins, A. Viescha Sur..... Set 92 ft. 4½-in. screen 3,323 ft.; 150 ft. oil in hole; shut down.

SAN JACINTO COUNTY

E. P. Edwards et al's No. 1 Bennett, northwest of Cold Springs ..... Spudded.

VICTORIA COUNTY

Newton et al's No. 1 West ..... Shut down 1,550 ft.
The Texas Company's No. 2 McFaddin, C. M. B. Hoyd Sur. ..... Drlg. sand 50 ft.

WASHINGTON COUNTY

Penn-Tex Oil Co.'s No. 2 Kamas Brenham, S. M. Williams Sur. ..... Spudded and shut down.
Vegua Oil Co.'s No. 1 P. Graves, S. Clampet Sur..... Derrick.
Oliver Drlg. Co.'s No. 1-A Hahn, J. H. Alcorn Sur. A-3... Drlg. sand and shale 1,387 ft.

WHARTON COUNTY

Shibe & Gray's (Hearte Oil Co.) No. 1 Brown, El Campo.. Total depth 2,814 ft.; tested dry 2,662 ft.; shut down.
H. H. Givans' No. 2 Hudgins ..... Sand rock 367 ft.; set 6⅝-in. csg. 296 ft.

SOUTH LOUISIANA
CALCASIEU PARISH

Crawford Doyle's No. 1 Johnson, Sec. 23-9s-13w..... Shut down 875 ft.
J. O. Davis' No. 1 Industrial, Sec. 29-9s-10w..... Set 6⅝-in. csg. with 172 ft. 6⅝-in. screen on bottom, 6,568 ft.
Wilfred Lahay's No. 1 Jardell, Sec. 16-10s-12w..... Shut down 3,258 ft.
Dr. Thomas et al's No. 1 John Hewitt ..... Location.
Vacuum Oil Co.'s No. 1 Wait, Iowa ..... Set 1 jt. 7-in. screen 5,008 ft.; comp. flowing 250 bbls. pipe line oil and 4,000,000 ft. gas on ⅝-in. choke; oil gravity 29.9° (cor.); temperature 54°; 1,350 lbs. pressure on drill stem and 1,100 lbs. on 9⅝-in. csg.

CAMERON PARISH

Shell Petroleum Corp.'s No. 2 State, Black Bayou..... Coring sandy shale 2,613 ft.
Shell Petroleum Corp.'s No. 16 Watkins, Black Bayou.... Drlg. sticky shale 3,864 ft.
Vacuum Oil Co.'s No. 2 Cameron Meadows, 3,120 ft. S and 1,900 ft. W from NE cor., Sec. 21-14s-9w (500 ft. S No. 1) ..... Dredging canal to location.
The Texas Company's No. 6 State, Calcasieu Lake..... Gyp 3,777 ft.; salt 2,399-3,667 ft. and 3,781-94 ft.; abandoned.
The Texas Company's No. 7 State, Calcasieu Lake..... Location.

IBERIA PARISH

The Texas Company's No. 6 Vermillion Bay..... Cmtd. 12½-in. csg. 1,075 ft.
Jefferson Lake Oil Co.'s No. 10 Lake Peigneur, Jefferson Island ..... Total depth 1,700 ft.; waiting on cement to set.
Jefferson Lake Oil Co.'s No. 10 Peigneur, Jefferson Island ..... Driving piling.

IBERVILLE PARISH

Gulf Ref. Co.'s No. 1 Gay, Bayou Choctou ..... Total depth 3,410 ft.; cmtd. 13⅜-in. csg. 670 ft.
Shell Pet. Corp.'s No. 5 Wilbert, White Castle ..... Packed sand and streaks of hard sandy lime 5,384 ft.; reaming.
Standard Oil Co.'s No. 7 Wilbert, Bayou Blue ..... Derrick.
Standard Oil Co.'s No. 8 Wilbert, Bayou Des Glaise..... Drlg. sand rock 4,039 ft.
Standard Oil Co.'s No. 9 Wilbert, Bayou Des Glaise..... Tubing capped.
Standard Oil Co.'s No. 2 Case, Bayou Des Glaise..... Location.
Standard Oil Co.'s No. 1 E. B. and S. P. Schwing, Bayou Blue ..... Drlg. shale and lime 5,265 ft.
Standard Oil Co.'s No. 1 Baist Cooperage, Bayou Blue... Rig.

JEFFERSON DAVIS PARISH

H. T. McClain et al's No. 1 Trimble Atterbury, Welsh, Sec. 16-9s-5w ..... Drlg. shale 3,936 ft.
The Texas Company's No. 3 Leesville ..... Location.

LA FOURCHE PARISH

Gulf Ref. Co.'s No. 2-B Buras Levee Board ..... Rock 2,048 ft.; lost returns.
Humble Oil & Ref. Co.'s No. 2 Cockrell-Moran, Lake Grand Ecaille ..... Drlg. hard sand 4,607 ft.
The Texas Company's No. 4 State, Garden Island..... Drlg. shale 5,229 ft.
The Texas Company's No. 5 State, Garden Island..... Location.

ST. JAMES PARISH

Convent Oil Co.'s No. 2 Jacobs, Sec. 28-11s-4e..... Tested salt water 1,834 ft.; pulling screen.

ST. MARTIN PARISH

Harrison & Abercrombie's No. 1-A Barras, Sec. 66-11s-6e.. Drlg. shale 4,237 ft.
The Texas Company's No. 3 Iberville Land ..... Drlg. shale and lime 4,052 ft.
The Texas Company's No. 4 St. Martin, Hager ..... Derrick.
The Texas Company's No. 5 St. Martin, Hager ..... Drlg. salt 3,916 ft.; top of salt 3,450 ft.

ST. TAMMANY PARISH

Washington-St. Tammany's No. 2 Cossack, Sec. 5-8s-10e. Drlg. sandy shale 1,940 ft.

TANGIPAHOA PARISH

Joan Development Co.'s No. 1 Lake Superior, Sec. 29-5s-9e, 640 ft. E, 675 ft. N of SW cor. ..... Shut down 3,016 ft.

TERREBONNE PARISH

Paggi Brothers' No. 2 Evergreen ..... Abandoned 1,800 ft.
United Prod. Corp.'s No. 9 Minor, Houma ..... Drlg. sandy shale 4,260 ft.
The Texas Company's No. 4 State, Caillou Island ..... Driving piling.
The Texas Company's No. 6 State, Caillou Island ..... Location.
The Texas Company's No. 1 L.L.&E., Bay St. Elaine..... Drlg. sticky shale 2,400 ft.
The Texas Company's No. 5 State, Bay St. Elaine..... Salt 1,463-1,662 ft.; cmtd. 12½-in. csg. 954 ft.
The Texas Company's No. 6 State, Bay St. Elaine..... Location.
The Texas Company's No. 4 State, Dog Lake..... Location.
The Texas Company's No. 5 State, Four Isle ..... Location.
The Texas Company's No. 2 La. L. & E., Bay Junop..... Drlg. rock 6,890 ft.
The Texas Company's No. 3 La. L. & E., Bay Junop..... Location.
The Texas Company's No. 4 La. L. & E., Bay Junop..... Location.
The Texas Company's No. 6 State, Lake Barre..... Location.
The Texas Company's No. 8 State, Lake Barre..... Drlg. hard sand rock 4,097 ft.
The Texas Company's No. 9 State, Lake Barre..... Capping piling.
The Texas Company's No. 5 State, Lake Pelto..... Location.

VERMILLION PARISH

Pure Oil Co.'s No. 1 Southwest, Louisiana Land Co., Gueydan ..... Drlg. sand and sandy shale 3,837 ft.

WEST FELICIA PARISH

Putnam Syndicate's No. 1 Como Plantation, Sec. 51-1s-4w. Total depth 3,738 ft.; shut down.

WILDCAT OPERATIONS IN MISSISSIPPI

Company, farm and location—	Remarks—
CLAY COUNTY	
Ohio Oil Co.'s No. 1 Cantrell, NE cor., Sec. 16-15-5	Rigging up with cable tools; T.D. 2,835 ft; hard lime.
COVINGTON COUNTY	
United Prod. Co.'s (was S. P. Borden et al's) No. 1 McIntosh, 330 ft. S, 330 ft. W, NE cor. SW NE., Sec. 5-8-16	Drlg. sand 2,803 ft.
Miss. Gulf O. & G. Co.'s No. 1 Pope, 200 ft. N, 200 ft. W, SE cor. W½ NW NE, Sec. 35-8-16	S.D; W.O. 3,000 ft.
GRENADA COUNTY	
Carter-Pace's No. 1 Dubard (was F. E. West et al's), NW NW, Sec. 18-22-4	Drlg. gumbo 1,180 ft.
HINDS COUNTY	
Atkisson & Dyer's No. 1 Downing et al, SE NE, Sec. 27-6-1	Rigging up.
Cane River O. & G. Co.'s No. 1 Kabbles, NE cor. SW SW, Sec. 15-5-1e	Cmtd. cavity 3,270 ft; in red beds.
Gulf Ref. Co.'s No. 1 McLaurin, 1,230 ft. S, 1,410 ft. W, NE cor., Sec. 30-6-2e	Top chalk 2,485 ft; 415 ft. S.W; T.D. 2,515 ft.
Howard Oil Co.'s No. 1 Jackson College, C NW NW, Sec. 9-5-1e	Began drlg. Dec. 22; cmtd. one joint 12½-in; shut down.
Miss. Pet. Co.'s No. 1 Solvent Inv. Co., NE cor. NE SW SW, Sec. 14-5-1w	T.A. 3,043 ft.
Tri-State O. & G. Co.'s No. 1 Wilson, 320 ft. E, 240 ft. N, SW cor. SE NE, Sec. 23-6-1e	Began drlg. Dec. 22; S.D. 20 ft.
JASPER COUNTY	
Bay Springs Pet. Co.'s No. 1 Keys, C NW NE, Sec. 21-2-10	Began drlg. Dec. 16; cmtd. 15½-in. 104 ft; S.D.
LAFAYETTE COUNTY	
Banks-Good et al's No. 1 May, 113½ rds. S, 26 rds. E, NW cor. SW, Sec. 22-10-1w	Derrick.
MADISON COUNTY	
Central O. & G. Co.'s No. 1 Cameron, 200 ft. W, 200 ft. N, SE cor., Sec. 11-9-1e	Arranging to cmt. 6⅝-in. 1,532 ft; S.D. repairs.
MONROE COUNTY	
Amory Dev. Co.'s No. 1 Bourland, Sec. 2-13-19	Arranging shoot; T.D. 2,400 ft.
Amory Pet. Co.'s No. 1 Harris, SW cor. SE SE, Sec. 18-13-17	Rig up.
Park Bowser et al's No. 1 Cowart, second hole, Sec. 2-12-19	Reaming to set 8¼-in. 1,180 ft; T.D. 1,262 ft.
NESHOBA COUNTY	
Collins et al's No. 1 J. M. Carter, SE SE, Sec. 29-11-12	Began drlg. Jan. 23; cmtd. 12½-in. 97 ft; drlg. 890 ft.
Ganzel et al's No. 1 Stallings, 280 ft. S, 280 ft. E, NW cor. NE NE, Sec. 25-5-1e	D.S. test 2,628-49 ft;S.W; drlg. 2,675 ft.
RANKIN COUNTY	
R. A. Moore et al's No. 1 Interior Lbr. Co., Sec. 28-6-1e	S.D. 900 ft.
Cleve Love's No. 1 Muse, SE cor. SW SW, Sec. 32-7-4e	S.D.; repairs 1,245 ft.
Millstein O. & G. Co.'s No. 1 Gammill-Hartsfield, 400 ft. E, 400 ft. N, SW cor. SW SE, Sec. 6-5-2e	300 ft. fluid; 50 ft. oil 2,503 ft; W.O.
Jackson Royalties, Inc.'s No. 1 Pate, NE cor. NE SE, Sec. 12-5-1e	Began drlg. Oct. 5; cmtd. 12½-in. 280 ft; drlg. shale 2,120 ft.
Cleve Love et al's No. 1 Brown, C NW SE, Sec. 12-5-1e	Began drlg. Oct. 9; drlg. 1,200 ft.
Pearl River O. & G. Co.'s No. 2 Pate, SE cor. SW SE, Sec. 12-5-1e	Began drlg. Oct. 7; cmtd. 10-in. 292 ft.
WARREN COUNTY	
Dixie Pet. Co.'s No. 1 Clark, 300 ft. E, 660 ft. S, NW cor., Sec. 31-17-5	Drlg. gummy shale 950 ft.
Raymond A. Moore et al's No. 1 Clark, SE, Sec. 31-16-5 (no check)	Derrick.
Vicksburg Oil Co.'s No. 1 Dornbush, 2,050 ft. S, 1,520 ft. W, NE cor., Sec. 8-18-5	S.D. 1,600 ft.
WINSTON COUNTY	
Miss. Drlg. Co.'s No. 1 Scarbrough, NW cor., Sec. 15-12-14	Drlg. gummy shale 2,053 ft.
YALOBUSHA COUNTY	
Collett-Carter Oil Co.'s No. 2 Blackmur, 990 ft. W, 285 ft. N, C, Sec. 14-11-4	Drlg. shale 2,360 ft.

WILDCAT OPERATIONS IN KANSAS

(Continued from Page 40)

MORTON COUNTY	
Hydraulic Oil Co.'s No. 1 State Land, NW SE Sec. 22-34-43w	Fishing 5-in. csg. 3,460 ft.
MORRIS COUNTY	
Great Basin Oil Co.'s No. 1 Ballyntine, SW SE SE Sec. 18-16-5	Fishing 1,300 ft.
Urschell et al's No. 1 Bersuch, NW SE NW Sec. 10-17-7	Machine.
Hankerson et al's No. 1 Cessman, SW SE Sec. 24-16-9	Rig.
NESS COUNTY	
Gypsy Oil Co.'s No. 1 Coleman, C SW NE Sec. 25-17-25w	Drlg. 3,420 ft.
NORTON COUNTY	
Richards et al's No. 1 Colby, Sec. 17-4-21w	Rig.
OSAGE COUNTY	
Briggs & Smith's No. 1 Wood, SE NW Sec. 21-14-15	Shut down 1,050 ft.
PAWNEE COUNTY	
Phillips' No. 1 Cuthbertson, NE cor. Sec. 27-20-18w	Drlg. 4,153 ft.
PRATT COUNTY	
Wilcox O. & G. Co.'s No. 1 Bappin, SW NW Sec. 7-26-15w	Shut down 4,720 ft.
RAWLINS COUNTY	
J. G. Durham et al's No. 1 Unknown, SW cor. Sec. 3-2-35w	Shut down 2,005 ft.
RICE COUNTY	
Cress et al's No. 1 Sharp, SE NE Sec. 13-20-10w	Rig.
Allison-Fitzwilliams' No. 1 Blake, NE NW Sec. 9-18-10w	Rig.
Gypsy Oil Co.'s No. 1 Koenig, SW NE Sec. 10-20-10w	Drlg. 3,415 ft.
Muth Bros.' No. 1 Beyers, NE NW Sec. 21-19-9w	Sand 2,000-02 ft.; 3,000,000 ft. gas; shut down 3,085 ft.
ROOKS COUNTY	
Empire Oil & Ref. Co.'s No. 1 Halsman, SW NE SE Sec. 17-7-20w	Drlg. 1,145 ft.
RUSH COUNTY	
Dewey & Mitchell's No. 1 Greenawalt, C SW Sec. 17-19-16w	Spudding.
RUSSELL COUNTY	
Agate Oil & Gas Co.'s No. 1 Rochfellow, SE cor. Sec. 6-13-13w	Show oil 3,042-44 ft.; bailed 18 bbls. 3 hrs.; now shut down.
Gilbreath et al's No. 1 Bratton, C NE Sec. 33-11-13w	Shut down 2,475 ft.
SEDGWICK COUNTY	
Streeter & Stearns' No. 1 Tobin, SW SE NE Sec. 5-22-2	Drlg. 2,610 ft.
Buck et al's No. 1 McNananan, NE NW NW Sec. 2-29-1	Rig.
SALINE COUNTY	
Sampson et al's No. 1 Sudenderf, NE SE Sec. 30-14-3w	Drlg. 2,725 ft.; water.
Twin Mounds Oil Co.'s No. 1 Weis, C W half NE NW Sec. 20-13-4w	Shut down 2,700 ft.
STEVENS COUNTY	
McNabb and Mid-Kansas' No. 1 Rhinehart, C NE Sec. 33-33-39w	Shut down 1,612 ft.
WASHINGTON COUNTY	
Sisson et al's No. 1 Penwell, NW SE NE Sec. 16-3-3	Shut down 1,720 ft.

OKLAHOMA FIELDS

(Continued from Page 36)

back from Wilcox sand 4,142 feet. Deep Rock Oil Corp.'s No. 2 Douglas 60 acres, NE cor. SW, Section 30-8-8, made 8,280 bbls. in Cromwell sand 3,080-3,133 feet. No. 3 Douglas 50 acres, SE cor. NW, Section 30-8-8, has been completed for 81,000,000 feet of gas in Cromwell sand 3,002 feet. Magnolia Petroleum Co.'s No. 3 Harjo, NW cor. NE NE, Section 14-7-6, gauged 25,000,000 feet of gas from sands 3,174-78 and 3,183-89 feet, total depth 3,196 feet. Gypsy Oil Co.'s No. 1 Charty, NE cor. SE SW, Section 29-6-6, has been completed for 2,674 bbls. in sand 2,555-2,628 feet.

Wagoner County

William La Pierre's No. 1 M. Gregory, NW cor. NE SE NW, Section 19-17-17, is rigging up. H. H. Orr's No. 5 Grayson, C SE SW, Section 34-17-18, has been completed for 500,000 feet of gas in sand 406-65 feet. Cartwright & Kyle's No. 1 C. Andy, CSL SW SE, Section 35-17-18, is dry and abandoned at 937 feet.

Oklahoma City Production

The following wells were on production during the seven days ending January 26 in the Oklahoma City Field under the proration orders. All other wells were shut in and will be opened and produced according to the curtailment plan.

Company, farm—	S-T-R	Wells	Bbls.
Acme:			
Armourdale	2-11-3w	1	753
Anderson-Prichard:			
Gibbons	1-11-3w	4	23
Wright	10-11-3	1	847
Blackstock et al:			
Harvey	15-11-3	1	149
Blackwell:			
Schilling	10-11-3	1	1,045
British-American:			
Eckroat	10-11-3	1	1,291
Holmes	10-11-3	7	3,066
Chattam:			
Chattam-Eckroat	10-11-3	1	1,371
Lindsey	2-11-3	1	1,036
Coline:			
Clour	23-11-3	16	614
Olds	24-11-3	10	470
Warren	18-11-2	8	269
Continental:			
Sudik	6-10-2	4	63
Cromwell-Franklin:			
T. Park	13-11-3	32	239
Dengall:			
Schilling	10-11-3	1	295
Empire:			
Gustine	1-11-3	2	18
Hall-Briscoe:			
Grace	3-11-3	1	27,923
Lindsey	14-11-3	1	169
Muller	2-11-3	1	71
Heeman-Coe:			
Cunningham	1-11-3	2	381
I.T.I.O.:			
Banta	18-11-2	1	16
Bod. Anderson	30-11-2	3	36
Bodine, A.	24-11-3	6	22
Bodine, S.	30-11-2	3	9
Brokaw, C.	13-11-3	4	513
Butterfield	11-11-3	1	82
Button	19-11-2	5	9
Carrico	14-11-3	5	124
Coppinger	11-11-3	8	366
Corff	11-11-3	5	241
Emmerson, N.	30-11-2	11	71
Farley, E.	24-11-3	1	93
Farley, L.	19-11-2	4	1,322
Farley, Fuzzell	19-11-2	2	651
Ferndale, Comm.	11-11-3	5	3,020
Foster	24-11-3	1	1
Funk	11-11-3	1	37
George	7-11-2	1	13
Holmes-Gray	14-11-3	1	21
Ivanhoe	15-11-3	2	11
Jones, H. W.	1-11-3	4	59
Jones	31-11-2	14	1,060
Jones, Comm.	1-11-3	4	869
Knox, May	14-11-3	4	179
K. Henning	24-11-3	3	4
Lawrence Place	15-11-3	3	729
Lemmon	11-11-3	5	38
Lindsey	15-11-3	1	169
Magnolia Heights	14-11-3	1	73
M. K. & T.	35-12-3	4	641
Okla. State Land	36-11-3	8	1,783
Pasadena Heights	14-11-3	5	887
Peterson, Sad	25-11-3	8	447
Phelans	15-11-3	2	54
Precure, A.	11-11-3	1	456
Rensimer	14-11-3	1	62
Reynolds	6-10-2	1	39
Salasman	32-11-2	5	51
Spannagle	15-11-3	1	383
Speegle et al	24-11-3	3	99
Spillman	14-11-3	3	59
Starkey	11-11-3	2	95
Sudik	31-11-2	10	646
Theimer, E.	12-11-3	8	46
Trosper	13-11-3	11	264
Trosper, Clar.	14-11-3	4	807
Trosper, E.	14-11-3	2	189
Trosper, H. G.	14-11-3	7	427
Trosper, L.	12-11-3	2	135
Unsell, M.	23-11-3	6	646
Unsell-Krager	23-11-3	3	2
Viewpoint	10-11-3	2	1,101
Waters	23-11-3	6	108
Webber-Wall	14-11-3	1	90
Warner, Farley	23-11-3	3	58
Williamson, Can.	24-11-3	2	69
I.T.I.O., et al:			
Boulevard, Add.	14-11-3	1	1
Kedberg:			
Burns	2-11-3	1	53
McArthur:			
Armour	2-11-3	1	1,324
Mid-Kansas:			
Browning	18-11-2	2	8
Fortson	24-11-3	5	7
Mollman	23-11-3	4	155
Trosper, D. B.	19-12-1	1	161
Minnehoma:			
Pugh	2-11-3	1	586
Phillips:			
Ball	3-11-3	1	284
Carey	2-11-3	1	61
Ciger	2-11-3	1	649
Day	2-11-3	1	95
Unruh	2-11-3	1	1,291
Prairie-Slick:			
Hiddleston	19-11-2	7	50
Sigman	32-11-2	7	203
Reynolds, W. R.:			
Hasting	1-11-3	1	240
Shaffer, J. C.:			
Childs	14-11-3	1	108
Shaffer, J. C., et al:			
Baker	1-11-3	1	196
Vinita Park	2-11-3	2	1,209
Shell:			
Egermeir	23-11-3	1	133
Potty	30-11-2	7	50
Sinclair:			
S. Land No. 54	36-11-3	16	1,696
S. Land No. 67	36-11-3	2	4,780
Stamper	30-11-2	6	32
Sinclair-Amerada:			
Donnell	23-11-3	1	127
School Land No. 69	36-11-3	3	1,026
Skelly et al:			
Ainsworth	10-11-3	4	92
Hurt	2-11-3	1	2,874
Tanner	10-11-3	2	1,229
Slick, T. B.:			
Campbell	3-11-3	2	1,778
Glassen	2-11-3	4	3,375
Clegg	2-11-3	2	281
Dean	10-11-3	1	784
Gleason	1-11-3	1	113
Glidden	13-11-3	2	56
Harrison	10-11-3	1	199
Wilson	2-11-3	1	2,725
Slick, T. B., et al:			
Baker	1-11-3	5	349
Key	2-11-3	2	184
Lard	2-11-3	1	2,198
Miller	2-11-3	1	393
Hoops	31-11-2	8	354
Slick-I.T.I.O.:			
Dennis	11-11-3	1	616
Huddleston	14-11-3	1	347
Sunray:			
Harris	2-11-3	1	205
Olafson	2-11-3	1	91
Westgate Oil Co.:			
Kelsey	10-11-3	1	947
Wirt Franklin:			
Birg	2-11-3	1	180
Holder	2-11-3	2	267
Page	35-12-3	5	182
Page, Tucker	35-12-3	1	28
Shehan	2-11-3	2	53
Theimer	2-11-3	13	116
Wright	2-11-3	3	43
Total		700	94,159
Last week		692	95,524

New wells, 8. Decrease, 1365 bbls. Average per well for pool, 134 bbls.

CANADIAN FIELDS

(Continued from Page 45)

of naphtha and 125 bbls. of light crude a week.

In Section 16-19-2w6, East Crest Oil Co.'s No. 3, LSD 4, encountered an unexpected burst of gas in the upper Kootenays at 1,780 feet. The flow, estimated around 15,000,000 to 20,000,000 feet was met close to the Dakota-Kootenay contact. It blew the heavy rotary mud out of the hole and then caught fire. D. M. Young and Jack Freischweiler of the drilling crew were slightly burned. The derrick was mostly saved, the drilling crew being able to run the flow through a line and extinguish it with steam and water. The derrick is being repaired and the test will be carried deeper.

Commonwealth Petroleums' No. 1, LSD 7, Section 9-19-2w5, is at 4,792 feet and preparing to resume after cementing 6-inch casing for water shutoff.

In Section 4-19-2w5, Mercury Oils' No. 5 is reported drilling in the belemnite beds just above the lime at 5,364 feet. Miracle Oils' No. 3, LSD 11, has derrick up and is installing rotary equipment. A recent daily production report shows Mercury's No. 1 making 684 bbls.; No. 2, 28 bbls.; and No. 3, 217 bbls.; with Miracle Oils' No. 1 making 285 feet.

Wellington Oil & Gas Co.'s No. 1 in LSD 1, Section 20-19-2w5, has been in steady production since early in 1930, making around 130 bbls. a day.

Operations in the Foothills

On the Waite Valley structure west of Turner Valley, Calgary Development's No. 1, LSD 10, Section 21-19-3w5, is drilling at 3,703 feet.

On the Moose Mountain structure, Elbow Oils' No. 1, LSD 11, Section 35-22-5w5, is drilling in a hard formation

at 3,135 feet. Signal Hill Oil Co.'s No. 2, LSD 9, Section 34-23-5w5, is shut down at 4,165 feet.

On the Moose Dome, Moose Oils' No. 1, LSD 16, Section 29-22-6w5, is fishing at 2,835 feet.

On the High River-Aldersyde structure, Ranchmen's Gas & Oil Co.'s No. 1, LSD 16, Section 13-20-29w4, is drilling below 4,640 feet.

Red Coulee Field

On the international Red Coulee structure, Scottish United Petroleums' No. 1, LSD 1, Section 3-1-16w4, on the Alberta end of the structure, is reported drilling at 1,830 feet, after running 10-inch casing to 1,420 feet to shut off a gas flow of 250,000 feet a day encountered at 1,300 feet. It is reported that a syndicate financed by Seattle and Portland interests is starting a new test in LSD 10, east of Southern Alberta Exploration's No. 1 producer. Cellar is being dug and derrick timbers are on the ground. The syndicate is reported to control some 1,200 acres in the Red Coulee Field. Taylor Syndicate of Vancouver, which drilled Taylor-Vanalta's No. 4 producer on Vanalta Oils' acreage, is reported negotiating for a test on acreage held by Alberta Pacific Consolidated Oils.

On the Montana side, Askalta Oils' No. 1 Vollbrecht, Section 11-37-4w, is reported preparing to drill into the Sunburst sand after running casing to 2,200 feet.

Canadian Exploration Tests

On the Spring Coulee structure near Lethbridge, Alberta Pacific Consolidated's No. 1, Section 15-4-23w4, is reported drilling at 5,205 feet. The drill is working in a hard formation and is still in the Kootenay horizon. Small shows of oil and gas have been encountered but nothing approaching commercial production; and an official statement issued by the Canadian Exploration Co., on whose acreage the test is being drilled, indicated that the Sunburst sand, the potential producing horizon, will likely be met around 5,900 feet. Test is being drilled by the Sheldon-Burden people who have a contract for 5,500 feet of depth.

The same announcement of Canadian Exploration Co. states that under the contract of September 20, 1929, four tests were to be drilled by Alberta Pacific Consolidated Oils, Ltd. Of these the test on the Duvernay structure north of Edmonton was last year abandoned, and the Spring Coulee test near Lethbridge is now drilling. A test on the Brazeau structure, west of Edmonton, is to be commenced in 1931, and following completion of the Brazeau well, the Parker Creek structure is to be tested in 1931 or 1932. Additional acreage has been secured in the Sullivan Lake area and this has been core drilled. The Canadian Exploration Co. also holds leases in the Lethbridge, Del Bonita, Knight Coulee and other Alberta areas; and has acquired interest in 2,500 acres in Glasscock and Reagan Counties, Texas, and also in a lease in Pecos County, Texas. A. E. Humphreys of Denver is president of the Canadian Exploration Co.

Tests in Border Areas

On the Lethbridge structure, Texas-Imperial's No. 1, LSD 14, Section 22-8-22w4, is reported drilling at 1,445 feet.

In the Milk River district, Commonwealth Petroleums' No. 1, LSD 9, Section 9-3-15w4, is reported drilling below 4,730 feet, and within about 50 feet of the anticipated break in the Devonian lime where production is looked for.

On the Beaver Dome, Madison Oils' No. 2, LSD 10, Section 24-2-11w4, is at 1,910 feet and working on casing. The 6-inch string set at 1,900 feet had to be pulled for deeper drilling and a light shot used to jar it broke the string. The drillers are fishing for 27 joints still in the hole. Water and gas are coming up outside the 8-inch casing, with traces of oil.

On the Montana side of the boundary, A-1 Petroleum Co. is reported spudding in on the Berthelote structure in the Sweetgrass Hills, due south of the Erickson Coulee well in Alberta and about 10 miles south of the border.

Tests by the Western Natural Gas Co. in the Sweetgrass Hills area just south of the boundary have been watched with interest by Canadian operators. Production has been reported at from 1,600 to 2,730 feet. The Reserve, Flat Coulee and Pin Horn Domes extend across the border into Alberta in Ranges 9, 8 and 7, Township 1. It is reported that A. H. Mayland and associates of Calgary are interested in a prospective test in Township 1-9w4; while there has been some leasing in the same general area by other interests. The test will be on the Alberta end of the Reserve structure though a definite location has not yet been announced.

Hudson's Bay Operations

In the Keho Lake district, southern Alberta, Hudson's Bay Oil & Gas Co.'s No. 1 Keho is reported drilling below 2,800 feet after running casing to 2,600 feet.

In the Castor area, east-central Alberta, Hudson's Bay's No. 1 Paintearth is preparing to resume after running casing to 3,412 feet.

Ribstone Field

In the Ribstone Field, eastern Alberta, Algonquin Petroleum's No. 1, LSD 1, Section 20-45-1w4, is reported drilling at 1,250 feet. In the Lloydminster area, Rayco Oils' No. 1, LSD 3, Section 4-47-1w4, is reported rigging.

Saskatchewan Test

In eastern Saskatchewan, Simpson Oil Co.'s No. 1, Section 9-29-25w2, is at 2,730 feet and shut down waiting for casing. Some 300 feet of pipe will be run preparatory to drilling through a bridge which formed when gas and water pressure lifted the tools in the hole.

Manitoba Test

In the province of Manitoba, Commonwealth Petroleum's No. 1 wildcat near Manitou is reported resuming at 745 feet after setting casing in a hard formation believed to be the capping over a gas sand. Tests drilled by an English syndicate in the same area some 17 years ago are reported to have encountered considerable gas at around 800 feet.

British Columbia Drilling

In the Sumas Prairie district, British Columbia, International Pipe Lines' No. 3,222, Section 22-19-5e, on acreage now held by Merger Oil & Gas Co. of Seattle, is reported drilling considerably below 277 feet, with 10-inch casing set at 72 feet to shut off surface water. A gas sand is looked for around 700 feet, as indicated by the previous tests of the Sumas Gas & Oil Co., and the International company is prepared to continue to 1,500 feet.

In the Tobacco Plains area near Dorr, Pacific Petrol Products' No. 1, Section 1-2-3, O. S. Dorr, is reported drilling at 320 feet.

Ontario Drilling

In the Dawn Field, Lambton County, Ontario, Union Natural Gas Co.'s No. 54, Steele farm, Lot 26, Concession 10, Euphemia Township, encountered salt water at 1,900 feet and has been abandoned. A noncommercial gas show was reported at 1,540 feet. Union's No. 55 has been located in Lot 16, Concession 3, Dawn Township, southeast of No. 47 producer, and is rigging up.

In Mosa Township, Middlesex County, Southern Ontario Gas Co.'s No. 6, NE Lot 16, Concession 3, has finished a dry hole. Of six tests completed in the Mosa gas area, only No. 1 has proven commercially productive.

On the Six Nations Indian Reserve in Brant County, Petrol Oil & Gas Co. of Toronto is continuing shallow drilling for gas, with three rigs. The company has already completed 37 wells in this area, production ranging from 30,000 to over 100,000 feet. It has about 36,000 acres under lease.

A delegation from the Ontario Crude Petroleum Producers' Association will wait on the federal government shortly to urge the restoration of the government petroleum bounty of 52½ cents a barrel, which was discontinued in 1925. The delegation will include J. E. Armstrong, Petrolia; A. W. Park, Oil Springs, and F. W. G. Winnett, London.

Late Alberta Items

In Central Turner Valley, Dome Oils' No. 2, LSD 16, Section 36-19-3w5, encountered a strong show of green crude in the Dalhousie sand at around 4,935 feet. The accompanying gas forced the tools up in the casing. About 50 bbls. of crude were bailed without reaching the bottom. The test is about 150 feet off the lime and the crude flow will be cased off, at least temporarily, and drilling continued to the lower horizon.

In the Pincher Creek area, southern Foothills, it is reported that Weymarn Petroleums' No. 2, LSD 5, Section 7-6-1w5, on the Mill Creek anticline, has been taken over and will be completed by Alberta Pacific Consolidated Oils, Ltd., of Calgary. The test is reported standing at 2,476 feet, after encountering fair shows of wet gas aggregating around 2,000,000 feet. The structure was first controlled and No. 1 test started by Louis Lilly and associates of Shelby, under the name of the Mount Royal Oil & Gas Co. Mount Royal's No. 1 in LSD 4 was discontinued and Mount Royal's No. 2 started. Later, Weymarn Petroleums, Ltd., took over the operations and deepened No. 2.

South of Pincher Creek, Alberta Gas & Fuel Co.'s Yarrow No. 1, LSD 16, Section 34-3-30w4, is drilling at 3,400 feet after serious trouble with caving. The potential oil horizon is looked for around 4,400 feet.

CURRENT PRACTICE IN WELL CEMENTING

(Continued from Page 38)

having a positive dumping device, such as the latch jack type.

It is generally conceded that all the cement to be used should be dumped in one batch, which is limited by the capacity of the bailer which can be used. In an ordinary plugging back job, quick setting cement, or cement containing accelerator, may be used and any number of batches dumped, allowing sufficient time for each batch to attain its final set before dumping another.

Types of Cementing Jobs and Adaptable Cementing Methods

1. Cementing water strings—Next to the actual finding of the oil itself, the proper exclusion of water from the oil-bearing sands is possibly the most important feature of oil producing. The exclusion of water is largely dependent upon the effectiveness of the cement job on the water string, making this one of the most important phases of the drilling of the well and conservation in general. The great depths to which we are now drilling wells, and the large amount of open hole which we are now casing with single strings of pipe are factors which are rapidly bringing up greatly increased collapsing strains on the casing. It is, therefore, necessary that the cement which we put behind our casing not only shuts off the water, but also be sufficiently strong and have sufficient height to protect the pipe from the tremendous collapsing pressure to which it is subjected. The fact that water has been excluded is not sufficient.

True, we have no means of checking the cement column behind the pipe, but we do know, however, that good cement which has been carefully mixed and placed will give the casing better protection than poor cement, ununiform mixing, or both. Therefore, it is essential that the following precautions be taken in any cementing job, and this will necessitate adequate supervision in the first place.

(a) The cement shall be fresh and of good quality, regardless of the type used. Any lumpy cement should be discarded.

(b) The hole should be in good condition to receive the cement.

(c) The surface equipment should be in first-class condition, so that no time be lost during the cementing process in making repairs.

(d) An adequate number of men should be provided to handle the job with the greatest possible dispatch.

(e) The cement should be uniformally mixed with the lowest water-cement ratio practical for the particular job at hand.

(f) Accelerator, if used, should be distributed evenly throughout the portion of the mix where used.

(g) The cement should be placed and the job completed with the greatest speed possible.

Casing may be set by a rotary rig or cable tool rig. Since somewhat different conditions are encountered on each, they will be considered separately.

A. Rotary holes—The cementing of water strings in rotary holes is the most efficient of all cementing jobs, especially from a mechanical standpoint. A rotary rig has machinery which will handle its part of the cementing work with speed and accuracy, which is not possible with cable tools. In the Oklahoma City Field, for example, 5,500 feet of 9-inch pipe is cemented with 1,200 to 1,500 sacks of cement in between 1 and 1½ hours.

The chief considerations in rotary jobs are the condition of the hole and the condition of the mud; the condition of the hole depending largely upon the condition of the mud. All of this should be considered and provided for, as the predetermined casing point is approached. The mud should be free from sand and shale, and as low a specific gravity as is practical. The United States Bureau of Mines has found, by experience and experiment, that the heavier the mud the more difficult it is to completely displace the mud with cement without contaminating the cement, and without danger of channeling. This is, of course, easily accounted for, because the closer two fluids approach each other in specific gravity, the easier they are to mix. The Bureau of Mines recommends that where the mud has a weight greater than 10 pounds per gallon a slug of water be pumped ahead of the cement to wash the heavy mud from around the casing. This will doubtless cause some dilution of the cement slurry, but since the diluted part of the cement will come at the top of the column no harm will be done.

The most satisfactory and almost universally used method of cementing casing in rotary holes is the two-plug method. For following and locating the position of the cement in the hole the Halliburton measuring device is more satisfactory than a displacement method. Should there by any chance be a major leak in the casing, the plug, or plugs, will stop immediately below the leak, the correct depth being indicated by the measuring device. This, incidentally, is the major advantage of the measured plug over a displacement method. In case of such a leak, the most practical thing to do is to pump out the cement and pull the pipe.

Before running the cement it is necessary to circulate the hole thoroughly. The time necessary for circulation will depend upon the amount of cavings found in the bottom of the hole. If the hole is found to be clean, it is only necessary to establish good circulation and run the cement. If a considerable amount of cavings be found on bottom, it is necessary to pump them completely out to below the point where the casing is to be cemented. It is then advisable to circulate for sufficient time to provide for complete removal of the cavings from the hole. Circulation should in any case be maintained until everything is in readiness to run the cement.

If the mud is heavier than 10 pounds per gallon, it is advisable to run a small slug of water ahead of the cement, preferably ahead of the bottom plug. After the bottom plug is put in the casing the cement is mixed and pumped into the hole, taking precautions that the mix be as uniform as possible, and the accelerator, where used, be evenly distributed.

The top plug is then started in on top of the cement. If the mud is very heavy, it is advisable, where a measuring device is used, to pump a small slug of water on top of the top plug to allow more freedom for the measuring weight. The progress of the plug should be closely watched by the measuring line, if that device is used, or by carefully checking the displacing fluid, where that method is used.

There is still some question as to how much cement should be left in the pipe at the conclusion of a cementing job. This should be based upon the experience of the operator. Since cement is easily drilled out, and since the laitance, or washed cement is on top of the cement column, it is far better to have more cement than absolutely necessary in the pipe than to risk having a poor job right at the casing shoe. A reasonably safe

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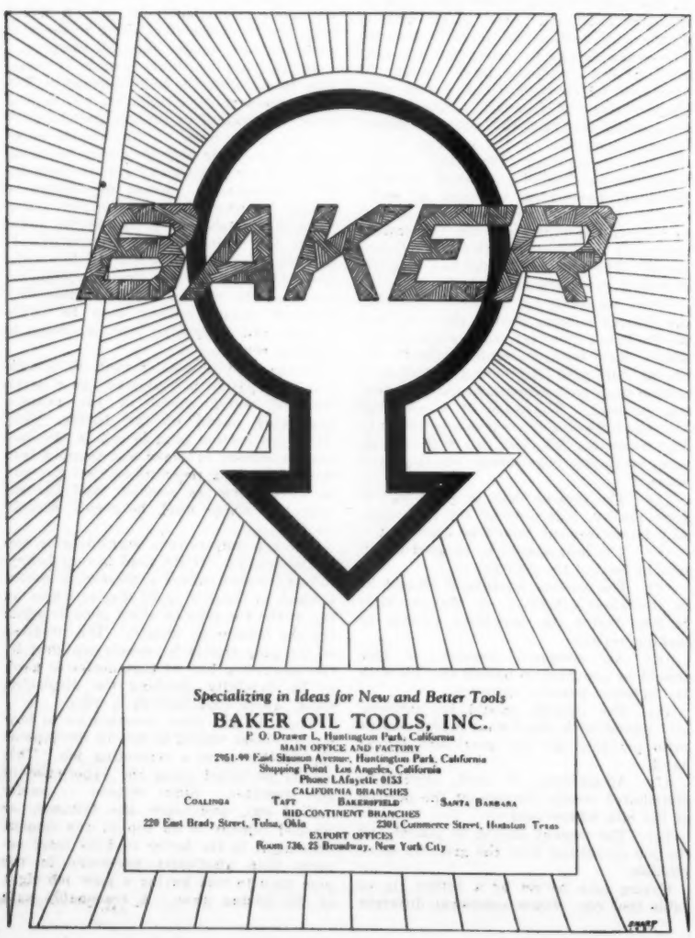
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amount of cement to leave in the casing would be 10 feet for every 1,000 feet of casing.

Where there is but a short distance between the water and the oil formations the danger of channelling must be considered, especially where the hole is slightly crooked. It is certain that the casing will lie to the low side of the hole, and, therefore, will get little or no cement around it. It is possibly a wise precaution to enlarge the hole by means of a rotary underreamer where such a condition exists. This should cut away the wall on the low side, where the hole is sloping, permitting the cement to completely surround the casing. There is also the added advantage that a greater amount of cement can be placed where it is needed most.

B. Cable tool holes—The usual method of cementing casing in cable tool holes is the same as on a rotary job, being the plug method. However, it is often more expedient to use some other method.

When using plugs, the procedure with cable tools is the same as with rotary work, and the same precautions should be taken. The chief advantage on a cable tool job is the fact that no large capacity pump is on hand to pump the plug down, hence the process is much slower. Since it usually takes much longer for pumping down with the pumps usually available at cable tool jobs, it is hazardous to use an accelerator; in fact, a retarding agent would be an advantage on many deep jobs. The cement should preferably be a slow setting type.

The ideal way to cement casing on a cable tool job would be to use tubing and a cement retainer, were it not for the fact that it is often a difficult matter to unscrew from the retainer after the cement has been placed. The tubing method is the quickest method of placing cement in deep wells under pressure, but, unfortunately, there are so many hazards entering into a job of this kind that it is only used where absolutely necessary.

The dump bailer method is frequently used in cable tool work where only a small amount of cement is to be used. Quite often an ordinary sectional bailer, provided with a "bump stick," is used, but it is well worth while to obtain a dump bailer made expressly for cementing purposes. As already stated, more than one batch of cement may be dumped, provided each bailer full is allowed to set before another is mixed and dumped. When using the dump bailer it is better to get a good job on a small amount of cement than to run the chances of a poor job on a larger quantity.

2. Cementing solid liners—While not a usual thing to do, it is sometimes necessary or advantageous to cement a liner. This can be accomplished by connecting the liner to a string of rotary drill pipe, or tubing, by means of a left-hand nipple. However, it is far better to use drill pipe, due to its having a greater stiffness and having the joints thoroughly made up. Tubing is extremely limber, and there will be considerable "make-up" in the joints when unscrewing from the liner, making this feat rather difficult and involving the danger of getting the tubing cemented.

The liner, sufficiently long to reach from the cementing point to well within the water string, is run on the drill pipe close to bottom. A calculated amount of cement, sufficient to reach in and around the liner to a point 30 or 40 feet above it, is then pumped in and displaced to the equilibrium point. The liner is then set on bottom, and the drill pipe unscrewed and raised 20 feet or so above the liner. The pipe is then thoroughly washed out and withdrawn, or packed off at the casing and pressure applied.

3. Recementing water strings—When the first cement job is unsuccessful, and a recementing job is necessary, the governing factor is whether circulation or fluid movement can be established, and if established at all, the degree of freeness has to be taken into consideration.

Where circulation is perfectly free, it is possible to use the regular casing method.

Where circulation is not free, the tubing method is the only one which should be used. The one-plug method is possibly the best one to use in this case, for the following reasons:

1. It is possible to tell when all the cement has been forced out of the tubing.
2. It is possible to establish a definite top to the cement left in the casing.
3. It is not necessary to release the pressure in order to withdraw the tubing to a safe height above the cement; therefore, the cement is not disturbed after it has once been placed.

The casing is equipped with a packing head to fit the tubing. The tubing, equipped on bottom with either a swaged nipple, or, better still, a float valve, is run to where the desired top of the cement is to be. Precaution should be taken that the last joint of tubing be a full, long joint, so that the tubing may be raised through the packing head as high as possible. The hole is completely filled with water, the packing head tightened, and the outlet from the casing closed. The cement is then pumped in, taking care that the packing head does not leak The plug is next inserted and pumped to bottom. As soon as the plug is on bottom, the valve on top of the tubing is closed before any pressure has been released, and the tubing is then pulled up the length of a joint without releasing the pressure on either tubing or casing. Should the packing head show a tendency to leak it should be securely tightened, and if any appreciable amount of fluid has leaked out during the raising of the tubing, the pump should be connected to the casing and a small quantity of fluid pumped in to replace that which has been lost. The job is then kept under pressure until the cement has set.

The thing that has to be watched carefully is that no leaks occur at the packing head. So long as the casing is full of fluid, and there are no leaks, the cement cannot rise between the tubing and casing. Should a leak occur, there is danger of getting the tubing cemented in the casing.

4. Recementing old water strings—The foregoing paragraphs have applied particularly to original cement jobs which have proven failures upon testing. It has been assumed that the water strings were in good condition. Quite frequently old water strings will develop leaks due to corrosion, or channelling of the original cement job. Liners or oil strings, which cannot be pulled, may also be present, and the water string may be in poor condition and unable to withstand severe pressures. All these factors tend to complicate the handling of the cementing job, and cause variations in the procedure which will have to be adjusted to suit local conditions. Several possibilities will be considered in this report.

(a) Where no oil string or liner is present—Assuming that the leak is around the shoe, and that the casing is in good condition, it will only be necessary to bridge the hole below the shoe and proceed according to whether circulation can be established or not, with one of the methods formerly discussed.

If the casing is worn or corroded to where it is too thin to withstand the pressure necessary to force the cement around the shoe, it will be advisable to use the tubing method with a cement retainer, provided, of course, that circulation or fluid movement can be obtained. The cement retainer is set at the desired point and a check made to be sure that fluid can be forced behind the pipe at a sufficient rate to allow for the placing of the cement.

The desired quantity of cement is then pumped in, using a plug, by preference, to pump it down with. The space between the tubing and casing should be full of water, and the water level carefully watched so as to tell whether anything is amiss. A flow of fluid between the tubing and casing may mean one of two things; either the retainer is leaking, or there is a leak in the tubing or casing above the retainer. In either case, the tubing should be unscrewed from the retainer, thoroughly washed and pulled out. If the cement has been successfully placed, the tubing should be unscrewed, washed and removed from the hole.

A suggested precaution, when using a cement retainer, is the placing of several guides on the lowest joints of the tubing

in order to center the tubing in the hole. In case the tubing does become cemented in the casing, it is then possible to wash over it and recover it quite easily. If the tubing is found to be stuck, it may be worked but not pulled on sufficiently to part it, for if parted it will kink up so badly in the hole that washing or milling will be difficult and offer the added danger of drilling out through the casing while attempting to mill over the crooked tubing. The top of the cement can be ascertained by means of a measuring line, and the tubing removed to this point before washing or milling over the remainder. This holds true in any tubing cementing job; never pull the tubing in two!

(b) When oil string or liner is present—The Summary of Operations, California Oil Fields, of September, 1928, gives an excellent outline for procedure in a case of this kind, as follows:

"When it is necessary to recement a water string with the oil string, or liner, in the hole, the cement must be forced through perforations in the oil string, and out around the shoe of the water string to stop the leak. To be able to accomplish this, the cement must be prevented from going either down or up on the outside of the oil string, as well as on the inside of it. This requires a suitable barrier both in and behind the oil string, below the point of recementing, and the application of pressure between the oil string and water string be such that it will not clog or seal the oil sands, and which can be removed readily when the job is completed. The best material to use in forming such a bridge anywhere in the oil-producing formations is sand, screened through a seive finer than the perforations in the oil string.

"In recementing a water string through the oil string, the hole should be cleaned out to bottom, and the perforations in the oil string thoroughly washed with water, removing the oil and any mud fluid from the well. Water must be used, as sand would not settle readily through mud fluid or oil.

"When the hole has been thoroughly washed, the tubing should be lowered until it is just off bottom. A funnel should be placed in the top of the tubing and a stream of water turned into the tubing from the hose. The sand should be poured into the funnel and carried down the tubing with the water, settling in the bottom of the well. Since the top of the tubing will not be filled to the top as long as the water and sand pass out of it at the bottom, and water overflows from it at the surface, when the sand has filled up to the bottom of the tubing, the tubing will begin to plug up and the overflowing behind it at the surface will stop. If this is noted, continued running in of sand and water will cause the tubing to fill to the top. When the overflow stops, or the tubing fills to the top, the tubing should be pulled up any desired distance, after which the sand will continue to run out of the bottom of the tubing. The screened sand passes through the perforations in the oil string, making a bridge both inside and outside the oil string. The operation continues until the top of the sand bridge is built up to the desired depth. The location of the top of the sand bridge is easily controlled, and can be determined by setting the tubing on it.

"It is evident that the placing of sand bridges in holes can only be done when the pressure in the sands is less than the hydrostatic pressure of the head of water to the surface. If the hole cannot be filled with water, sand can be placed in the hole in the same manner and the sand bridge built up. However, the only evidence that the sand has filled up into the tubing will be the filling of the tubing to the top with water.

"When the sand bridge has been placed in the well, recementing can be carried out either by the dump bailer or tubing method, with or without a retainer, depending upon existing conditions. However, arrangements must be made to pack off between the water string and the oil string, as well as between the oil string and the tubing. There must also be suitable perforations in the oil string for the purpose of recementing through them. If there is doubt about the perforations being large enough, the oil string should be reperforated before the recementing operation is commenced.

"After the recementing operation is completed and the job tested, the sand bridges are cleaned out of the hole by circulating water through the tubing."

5. Recementing combination strings—Should it become necessary to recement a combination string the procedure is the same as the above description of recementing when an oil string or liner is present. If circulation can be established, the recementing job can be handled in the same manner as the original job. Where circulation cannot be regained, it will be necessary to make additional perforations below the original cementing point, and a sand bridge built up to within a few feet of them. The cement may be introduced through tubing, or with a dump bailer, and pressure applied as previously described.

6. Cement repair work: Plugging back, etc.—By repair work is meant the placing of cement plugs in portions of the hole after the well is completed. These plugs may be placed either in the hole to the full diameter thereof, or in places behind the casing, depending upon the conditions of the job.

It is necessary on these jobs that great care be exercised, both in assembling the necessary data before the job is attempted and in conducting the actual cementing operations.

Before attempting the job, the following data should be assembled:

1. The production record should be carefully studied and analyzed to determine first of all the possible cause of trouble.

2. The drilling records should be examined to ascertain the probable condition of the hole behind the casing.

3. The casing record should be checked with reference to casing points, size of pipe, amount of cement used, amount of perforated pipe and size of perforations, if any.

4. The complete geological record should be carefully checked.

5. The present condition of the hole should be ascertained and the hole put into condition for the job.

Before starting the actual cementing, a complete outline of the procedure should be made, with the following precautions taken into consideration:

1. The type of method to be used.

2. The fluid in the hole must be hydrostatic equilibrium. If not, there is danger of agitation after the cement has been placed.

3. The temperature of the circulating fluid and of the bottom of the hole should be considered, as this will materially affect the setting time of the cement, and may be sufficiently high to cause the initial set to take place while the cement is being placed.

4. The tubing, if used, should be in good condition.

5. The hoisting equipment should be in good condition.

6. The cement mixing and placing equipment should be in good order.

7. The number of men used should be ample to carry out the job with the greatest possible dispatch.

8. All measurements must be accurately checked.

9. The cement should be the right type for the job, and in good condition.

10. Accelerator should not be used in the cement when the time necessary to place the cement is greater than the time for the initial set of the cement under temperature conditions of the circulating fluid and of the hole itself.

11. The slurry should have as high a specific gravity as practical, that is, a low water-cement ratio.

12. The water supply should be ample for all needs.

13. The temperature of the mixing water should be as low as possible.

14. Where a rotary is in use, the mud should be as light as is practical.

Plugging Off Bottom Water

Bottom water is here meant to include all water which occurs below the pro-

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ductive sand and will include such cases as the following:

1. Where the well has been drilled into a water sand below the oil.
2. Where the lower portion of a sand series has started to produce water.
3. Where edge water is encroaching upon an oil sand, etc.

(a) Where no oil string or liner is present—Taking an example of a rotary drilled well that has been drilled into a water sand. The drill pipe is run close to the bottom of the hole, and the cement pumped in. The drill pipe may be slowly rotated during this process, and such a measure is rather good precaution against channelling. The cement may be forced out of the drill pipe by one of two methods.

The Kelly may be inserted into the top of the drill pipe loosely, so that air will enter through the tool joint, and mud pumped in on top of the cement. As soon as the mud commences to overflow the drill pipe, it is certain that hydrostatic equilibrium has been reached, and that the top of the cement column inside the drill pipe is equal to that on the outside. This, of course, is due to the cement being of a higher specific gravity than the mud. The Kelly may be screwed into the top of the drill pipe and a measured quantity of mud pumped in, sufficient to displace most of the cement out of the drill pipe. The drill pipe is then raised a few feet above where the top of the cement is desired and the excess cement circulated out of the hole, and the drill pipe either pulled out of the hole or raised to a safe height above the cement, where it may be packed off and pressure put on the hole, if desired.

On cable tool jobs of this description, either tubing or the dump bailer may be used, depending upon the amount of cement to be placed. Where tubing is used, it is often quite a lengthy job to get all the excess cement circulated out of the hole where no large capacity pump is at hand. To speed up this dissipation of the excess cement the circulation can be "reversed" by pumping fluid into the casing and washing the cement out through the tubing. After circulation of the excess cement from the hole, it may be desirable to "pinch" a gate on the discharge from the hole and maintain 200 or 300 pounds pressure while circulating out the excess cement. Circulation may be kept up for several hours under pressure in that manner, and then the tubing may be pulled out.

Quite often a sand or lime series from which production has been obtained has been heavily shot and large cavities exist in the portion of the hole which has to be cemented. Such is the case in the fields of West Texas, and the necessary amount of cement to fill the shot holes is hard to estimate. In plugging off the bottom hole water at Borger, Tex., the procedure was to run 10 to 20 sacks of Lumnite (high alumina) cement per day until the hole was filled to the desired point. The cement was mixed with 4½ gallons of water to the sack of cement. This was run by the tubing method and let stand 24 hours. The top of the cement was then measured by means of a measuring line, and the tubing set on top of the cement to test its hardness. These wells were plugged back to 40 to 60 feet by this method, which was found to be very satisfactory. This method gave excellent data on the size of shot holes for future reference.

(b) Plugging back with oil string or liner present—The presence of an oil string or liner in the hole, and which cannot be pulled, makes the cementing process more difficult, since the cement must be placed both inside and outside of the casing. If the perforations in the oil string or liner are small, or not very numerous, it will be necessary to either tip or perforate the section of the casing where the cement is to be placed. The hole is then thoroughly washed out through the perforations, and the cement placed through tubing, using pressure as already described above.

It must be remembered that pressure cannot be applied to the cement if there are perforations above the cementing point, unless the space between the oil string and water string is full of fluid and packed off as well as the space between the tubing and the oil string.

Plugging Back to Shallow Sands

Quite often it is found that before abandoning a deep well it is advisable to test shallow "showings" which have been cased off behind the water string. This particular type of job is often difficult to handle, due to insufficiently accurate geological data, also a lack of proper drilling data on old wells, so that failures to get results with cementing in such cases may be due to inaccurate information more than the cementing methods themselves.

Taking simple cases where the shallower sands are below the water string, the procedure will be the same as for plugging off bottom water, already described. When the desired sand is behind the water string considerable difficulty may be experienced in getting a water shut-off unless provisions have been made while drilling the well for producing from the upper sands.

It will first be necessary to plug off any bottom water in the hole. Assuming that the sand to be tested is behind the water string in an uncemented portion of the hole, it will then be necessary to get a water shut-off both above and below the sand.

A bridge is built up to a few feet below the point where it has been decided to bottom the cement. The casing is then perforated at this point and an attempt can then be made to establish circulation. If circulation is established the desired amount of cement, to fill up to near the shallow production sand, is then run and forced through the perforation. This is done either by a casing or tubing method. After the cement has set the casing should then be perforated above the producing sand and circulation again established. Cement is then pumped through the perforations and allowed to set, thus shutting off water and caves above the sand to be tested. The casing is then perforated at the sand.

This type of job may be handled in several different ways. The whole section of casing just above and below the sand can be perforated at one time and the job handled as though cementing through a perforated liner or oil string. The method of handling will depend on the experience of the operator in the particular locality where the work is being done.

7. Miscellaneous cementing jobs:
   (a) Plugging back crooked holes.
   (b) Cementing caves.
   (c) Porous formations.
   (d) Cementing off sidetracked tools.
   (e) Plugging wells for abandonment.

These jobs necessitate the running of cement plugs, and are similar in that respect. The methods of handling them are the same as for plugging off bottom water, already described.

From this report it will be seen that there are certain fundamentals which must be taken into consideration in all oil well cementing work.

1. Cement, regardless of the type used, should be free from lumps and as fresh from the mills as possible, and should be carefully stored to prevent deterioration. The selection of the type of cement used will depend upon the conditions imposed by the particular job.
2. Whether accelerators are used, or not, will depend upon the setting time of the cement and the time necessary to complete the job under the temperature condition of the circulating fluid and the hole itself.
3. The cementing method used will be determined by the conditions of the job to be done, and the equipment available to do it with.
4. It is necessary that whatever surface or underground equipment is used be in good condition, as delays occasioned by breakdowns are dangerous both to the ultimate strength of the cement and to the well itself.
5. All cement jobs should be properly supervised by experienced men. While the cement crews, drillers, etc., may have had a great amount of experience in the work, it is impossible for them to run the cement and keep an accurate check on all the details at the same time.
6. An accurate engineering report

should be made on all cement jobs for filing purposes. It is only by past experience that we can hope to improve our methods on future jobs, so that records are of extreme importance. A suggested form for such purposes is included in this report.

7. It should be remembered that while a vast amount of research work has been done on concrete, there has been practically nothing done outside the oil industry on neat cement under conditions which approximate those found in oil well work. A suggested outline for such work would include investigation of its behavior under the following conditions before setting, and its strength after setting. These tests should include different types and brands of cements.

(a) Water-cement ratios from 4½ to 6½ gallons per sack.

(b) Temperatures from 70° to 200° F. with and without accelerators.

(c) Pressures up to 4,000 pounds.

(d) Agitation up to five hours.

(e) Contamination by exposure to such impurities as oil well salt water, sulphur water, oil and rotary mud.

In addition, the following investigations would be very valuable:

(a) Investigation of suitable retarding agents.

With the ever increasing depths to which we are drilling and the higher bottom hole temperatures encountered, the use of a satisfactory retarding agent is becoming necessary.

(b) A suitable method for quickly determining the deterioration of dry cement.

With the growing need for cement of the best quality, a suitable method for rapidly determining whether a dry cement had deteriorated sufficiently to injure it, would be valuable. When cement has been purchased it is often difficult to know the amount of deterioration which has taken place in the cement. A practical field method for this purpose would have to be one which could be run in a few hours with simple instruments. The marking of the date of manufacture or sacking on each sack by the manufacturer would help considerably.

Summed up, there has been a great improvement in cementing practice since cement was first used to exclude water from oil wells, but the improvements have practically all been mechanical. It is now time that we investigate the behavior of the cement itself.

Sample Cementing Data Sheet

Name of company .....

Lease—Well No. 1 J. Doe, Section 4-5-6. Date—October 1, 1930.

Object of cement job—To plug back to Cromwell sand from Wilcox sand.

Status of well before cementing—Wilcox sand plugged off. Top of plug at 4,000 feet.

Preparation of well for cementing—Hole bridged to 3,200 feet; 8¼-inch casing perforated with XYZ perforator from 3,200 feet to bottom of sand at 3,150 feet; fifty 1-inch perforations. Hole thoroughly washed.

Cementing method used—Tubing. No plug.

Cement data: Type of cement, portland; brand of cement, A.B.C.; number of sacks used, 60; how mixed, Halliburton; amount accelerator user, none; water-cement ratio, 5½-gallon sack; temperature of mixture water, 85° F.

Placement data: Size of tubing used, 2½-inch; capacity of dump bailer, ...; time pumping cement in, 5 minutes; time displacing cement, 10 minutes; pressure required to displace cement, 300 pounds; pressure left on cement, 1,000 pounds; setting time allowed, 5 days.

Status of well after cementing—Cement plug from 3,200 feet to 3,100 feet. Now preparing well for plug above sand.

Remarks—Excess cement pumped out with bottom of tubing at 3,148 feet, using reverse flow for 3 hours at 300 pounds pressure.

Signed: .....,
District Engineer;
.....,
District Superintendent

THR/b
10-31-'30.

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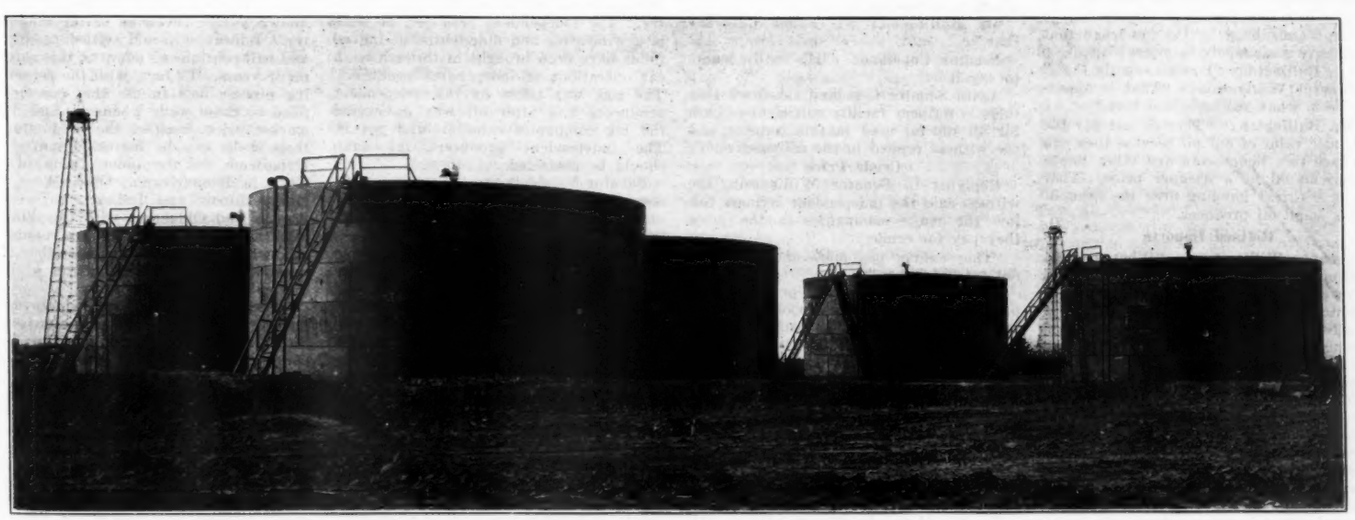
LOSS IN RE-EXPORTS

NEW YORK, Feb. 2.—Great Britain during 1930 re-exported a total of 72,049,127 gallons of refined petroleum imported into the country during the year. This compares with re-exports of 102,227,409 gallons in 1929.

Re-exports from Great Britain for 1930 by products, with comparison with the previous year, follow:

	Gallons	
	1930	1929
Motor spirit	45,889,477	78,936,245
Illuminating oil	14,658,498	12,760,950
Lubricating oil	2,965,376	2,666,633
Gas oil	2,662,243	2,967,828
Fuel oil	5,719,326	3,063,020
Other oils	154,207	1,832,733



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HEARINGS BY SENATE COMMERCE COMMITTEE

(Continued from Page 21)

of the running. The independent service station man must obtain his gasoline from tank wagons." The witness referred to a station in Texas where gasoline was sold at 8 cents a gallon, 4 cents for the tax and 4 cents for the product. He had bought gasoline at 15 cents at the filling station in the afternoon and at 6:30 o'clock at another location he paid 25 cents a gallon.

Independent Refiners

Senator Vandenburg: "Are you not in a situation where this legislation you ask for will give no assurance of relief but you will continue to be at the mercy of these big companies?"

Mr. Bullington: "They import gasoline and sell below our cost of producing oil and by that means they eliminate the independent refiners. We can stop that if we can compete with them on an equal basis of oil production in this country without being submitted to that foreign competition. They hold this power of imported oil and imported gasoline to break the market. They can put us out of the picture any time they see fit."

Senator Vandenburg: "Then the American public is buying in a controlled market."

Senator-elect Gore wanted to know what made up the differences in the different prices asked for gasoline in different localities.

Mr. Bullington referred to the differences in the cost of distribution, different taxes, freight rates, investments, etc.

The witness, asked whether the big oil operators opposed an embargo, said he did not know that they did oppose it. He thought it would be a good thing all around and he did not see why they should.

Mr. Vandenburg: "Since you are at their mercy, cannot they operate with this wall you are endeavoring to build around the oil industry just as they do now?"

Mr. Bullington: "I do not think they could operate with anything like the success with which they now operate."

Mr. Vandenburg: "Do you mean that they have a monopoly in prices?"

Mr. Bullington: "I mean exactly that."

Senator Williamson: "That is apparent from what has been said here."

Mr. Bullington: "They do not pay the intrinsic value of our oil because they can produce this Venezuelan and other South American oil at a cheaper price. That oil is a threat hanging over the head of every small oil producer."

Refined Imports

Senator Williamson: "What proportion of oil imported here is refined before it reaches our shores?"

Mr. Bullington: "About one-half of it is refined before it gets here."

Senator Williamson: "If you produce all the oil here you get practically all of it refined in this country?"

Mr. Bullington: "Yes, and we want the importation of Venezuela oil cut down just as we prorate and cut down our production."

Senator Sheppard said an embargo would relieve unemployment and Senator Vandenburg remarked he was glad to hear the Texas senator favor the principle of a protective tariff.

"How a Republican protectionist can oppose a tariff on oil is something I cannot understand," retorted Senator Sheppard.

Replying to a question by Senator Copeland, Mr. Bullington said little gasoline had come from Russia but some had been sold here recently and it could be sold for less than it was possible to produce it here in this country because the Russian industry had paid nothing for its oil property and practically nothing for the labor utilized in production and refining.

Mr. Bullington said the present oil depression had caused a loss of $10,000,000 to the oil states, which money they had failed to receive in the form of taxes. The Federal Government and the Indian wards lost money. Income taxes have declined and he believed that the oil business as a whole normally paid more taxes than any other industry. He referred to reports of geologists saying in 1915 that the oil supplies of the country were not more than 7,000,000,000 bbls., although by 1929 over 8,000,000,000 bbls. had been produced.

Senator Copeland: "Then if I change my mind about our oil reserves I would be doing nothing more than the geologists have done?"

The witness agreed.

Small Wells

Senator Copeland showed an interest in the small producing wells and wanted to know what would become of them if they were closed down. Mr. Bullington said they would be a total loss as it would not be economical even to redrill the area from which these wells are producing; it would not be economical to drill wells with the prospect of such small production, although if not interrupted they could be kept producing oil for many years. If something is not done to keep them producing, it would amount to a loss of 200,000 bbls. of crude oil daily.

A reference to the right of Congress to place an embargo on imports, Senator Shortridge remarked that under the power of Congress to regulate commerce imports may be limited or entirely suspended in reference to any product.

The witness said the daily production in the Mid-Continent Field had been reduced to the extent of 183,000 bbls., which was one-third of the production of these oil fields.

"We have curtailed flush wells much more than we are asking Congress to curtail imports," said Mr. Bullington. "In the Oklahoma City Field the curtailment was down to 1½ per cent of the potential production."

In reply to Senator Gore, the witness said in the Oklahoma City Pool the curtailment was so great it meant the wells could be pumped only 3½ days a year.

There was more talk about controlling prices of gasoline and Senator Vandenburg again interrogated the witness, saying, "When you get down to exact statement you cannot quite say the price of gasoline is controlled?"

Mr. Bullington: "I cannot quite say that."

Senator Copeland: "He really wants to say it."

Again Senator Copeland asked whether there is refinery facility sufficient to care for all the oil used in this country and the witness replied in the affirmative.

Crude Price

Replying to Senator Williamson, the witness said the independent refiners follow the major companies in the price they pay for crude.

"They cannot pay more and they cannot get it for less," he said.

Senator Nye asked the proportion of production owned by the major companies and the witness said they had about half of it.

Senator Williamson: "I notice from time to time the price of crude oil is advanced and lowered. From what agencies do these announcements come?"

Mr. Bullington: "They usually come from one of these major companies."

Senator Williamson: "In unison?"

Mr. Bullington: "From one or another of them and the others follow.

Senator Harry D. Hawes (Democrat) of Missouri, referring to the duty asked of $1 a barrel on crude oil, wanted to know how much more it would cost to run a car or a tractor if such a duty should be imposed.

The witness said he was not now asking for a tariff on oil.

Senator Hawes: "You do not believe an embargo will increase the price of lubricating oil?"

Mr. Bullington: "Lubricating oil now sells for as much as was obtained for it when crude oil was $4 a barrel."

Senator Hawes: "I would like to understand that more clearly. It does increase the cost of gasoline and lubricating oil and I would like to know how much that increase would be."

"I do not think it would increase the cost. When crude was $2.04 a barrel the average price of gasoline in 50 cities was 18.09 cents. That was in 1928. In 1929 when crude was $1.20 a barrel the average price of gasoline in the same city was 18.29 cents."

Senator Hawes: "I cannot understand what benefit you would get from an embargo unless it increased the price of oil, which increase would ultimately be paid by the consumer of gasoline and lubricating oil."

Mr. Bullington: "I can only judge the future from the past and that shows that the price of crude does not determine the price of the products. I think the embargo would not cost the consumer a penny. The big companies use imports to depress our price of crude, but there is no decrease in gasoline prices."

The witness said the situation was something like that of the farmer because the price of wheat was not reflected in the price paid by the consumer of bread.

Ralph Arnold of Los Angeles was the next witness. He explained the apparent inconsistency in geologists in predicting the potential oil reserves of the country.

Kettleman Hills

Senator Nye wanted to know how the Standard Oil had acquired such a large interest in Kettleman Hills and the witness said the property had belonged to the Southern Pacific Railroad Co. The Government tried to get that land back and the witness was employed in connection with that effort.

"I found the Southern Pacific sold that land for $2 an acre when it was really worth $10,000 an acre and that fact did much to show that the railroad did not know the land was valuable. The Standard Oil Co. acquired the land when the Government forced the Southern Pacific to dispose of it. The Southern Pacific had to sell to somebody and the Standard Oil Co. was the only company that had enough money to buy it."

Doctor Arnold said big oil companies could produce oil without a profit and still make a profit as refiners and distributors, while the independent oil man is dependent solely on the price of crude oil. He also said the producer has never obtained from the producing business as much money as he has put in it, referring to the entire oil-producing industry. The independent producer, he said, is a wildcatter and nine-tenths of the oil fields have been brought in through wildcat operations of independent producers. The risk was taken by the independent producers and after oil was discovered the big companies came in and got it. The independent producers, he said, should be protected.

Senator Vandenburg: "You are at the mercy of the big companies?"

Doctor Arnold: "Yes, and we are fighting that condition now."

He said production between the big and small companies is about 50-50 in interest but the large companies control 80 or 90 per cent of the distribution.

Senator Vandenburg said the independent producers were dependent upon some sort of protection other than that now proposed by the witness but Doctor Arnold said he did not agree with that suggestion.

Senator Vandenburg: "If the big companies control distribution and they can take their own oil for nothing, although you shut off their extra supply, will they not still rely upon their own internal supply and still put you out of business?"

Doctor Arnold: "No, because the amount of oil they import is 10 per cent of the oil produced in the United States. Remember that the oil imported comes in much cheaper than they can produce."

Doctor Arnold said he doubted whether the legislation asked for will increase the price of gasoline at all. The price of crude and gasoline, he added, had no connection. A drop of 20 cents in the price of crude has no effect on the price of gasoline.

To Separate Pipe Lines

Senator Vandenburg: "Have we not got to separate pipe lines and production before the independent producer can be protected?"

Doctor Arnold: "I think it would be a help to the oil industry to have transportation systems separate from oil production interests."

Questioned about the oil shales, Doctor Arnold said there are 92,000,000,000 of oil in such reserves.

Secretary Russell Brown of the Independent Petroleum Association introduced statements of delegates saying that the bill advocated is based on the theory of prorating imports of crude as the producers had been prorated in the United States.

"The importers having during the year 1928 expressed a willingness to prorate their imports, but failing to do so, alleging that the reasons why they could not do so was that there was no law under which such proration could be enforced, and that they might be held to have violated the provisions of federal law, it was the idea of the conference to provide a legal means of limiting the imports of petroleum into the United States, by the terms of this bill," he said.

T. F. Hunter of Wichita Falls, Tex., declared in his statement that "there are now producing in Texas, thousands of marginal or stripper wells being produced at a loss and unless relief is given these operators quickly those wells will be abandoned and plugged. If they are, millions of barrels of reserve oil will be lost and thousands of workmen engaged in the operation of these wells will be forced among the unemployed. The same condition exists in all oil-producing states and unless relief is had, operators and workmen in those states will suffer the same consequences."

Capt. J. F. Lucey of Dallas, Tex. (associated with Hoover unemployment committee in the Southwest), presented a statement on unemployment.

Stripper Situation

"There are today between 10,000 and 11,000 small stripper oil wells in 11 counties of Kansas shut down without a market for their products and have been since the first day of January, 1931," said A. M. Landon of Independence, Kans.

"By stripper wells, I mean wells that are on an average about 15 to 20 years old of shallow depth, ranging from 300 to 500 feet deep and capable of making about three-fourths of a barrel a day each. This class of production is what is known as the backbone of the oil industry. I mean it is old settled production and will continue to pump at this rate for many years. In fact, with the repressuring process now in use that can be applied to these wells when, as, and if the market price justified the production of these wells can be increased materially. Experience in the older fields of the East, in Pennsylvania, Ohio, West Virginia, Illinois and Indiana, as well as Kansas and Oklahoma with this kind of work has proven that they are capable of producing as much oil again as they have produced in the past 20 years of their existence.

"These wells are now rapidly being flooded with salt water and the owners of these wells, independent operators, are facing utter ruin. You understand that every well makes a certain amount of salt water. This water is produced right along with the oil. If the wells are completely shut down the salt water accumulates and being heavier than oil forces its way back into the oil sand, driving the oil away from the pumps. Today the owners of these wells are pumping them just enough to keep the salt water off in the hope that some relief may be obtained in the next few weeks that will give them a market again for their products.

"Of course you understand the length of time that a producer can pump these wells is gauged by two things: first, his financial ability to continue his operation with no income, and second, the physical limitation. I mean by that that each well makes a varying amount of salt water. The wells making the most salt water would be the first hurt.

"It is not necessary for me, I am sure, to point out to this committee that in addition to the owners of these wells, there are the royalty owners, the farmers on those lands these wells have been produced and they have been depending upon them for a steady income and the men who have been employed in the pro-

ducing of these wells, the banks and the merchants of the community that have been built up on this business.

"I want to emphasize again that these wells are the backbone of the oil business because the older the well gets the more the declined curve of its production flattens out, so that these wells have always been considered a permanent and secure source of income."

William Fulton of Conrad, Mont., said: "If we shut in 1,050 wells in the Sunburst Field, few of them will ever again be put on production. There will not be probably more than two or three dozen of the 1,050 wells ever put back into production, and the physical condition of those fields will be such that they will utterly destroy those wells."

Hobbs Area

M. H. Bridges of Hobbs, N. M., said: "In New Mexico we have large proven and potential oil lands, including state public lands as well as lands privately owned. While our daily potential oil production is rated at well over 1,250,000 bbls., we are producing a little over 40,000 bbls. of crude oil daily. We have tried everything the major oil companies and the Federal Government has asked in the way of conservation and protection. On January 5, 1931, a public hearing was held in Santa Fe, N. M., to consider the extension of the proration agreement in the Hobbs Pool for another period of six months. At this hearing we took stock of just what was happening to our oil development in New Mexico. We had tried proration of the Hobbs Pool, which resulted in drilling being discontinued, at least two pipe lines ceasing operations, and refineries and rail shipments under way being held up or cancelled. We were told that there was no market for New Mexico crude in excess of the 30,000 bbls. now being taken daily from the Hobbs Pool.

"We found that imports of foreign oil and refinery products from Mexico and South America to Gulf and Atlantic ports amounted to over 300,000 bbls. daily. We found that at least four of the major companies making that oil development in New Mexico be curtailed and delayed were importing practically all of this oil into markets normally the markets for New Mexico oil. We also found that these companies were the Standard Oil of Indiana, Gulf Oil Corp., Standard Oil of New Jersey and Dutch-Shell, and that these companies had built refineries off the coast of Venezuela having a daily capacity of over 400,000 bbls. of crude oil.

"We are of the opinion that the United States crude oil producer is being asked to curtail his production of crude oil to enable those importing companies to take the export market for crude oil and refinery products normally belonging to American producers.

"We believe that oil developments should be favored in the United States in preference to foreign countries, certainly to the extent of supplying all oil and refined products to United States domestic markets and the foreign markets that can be normally claimed by the United States producers."

W. J. Brundred of Oil City, Pa., said: "Some have argued that we should use up the crude reserves of other countries before drawing on our own, but what, then, would become of the $11,000,000,000 invested by United States citizens in the oil industry? Higher crude prices in this country would do more to protect our reserves than any other measure — they would keep the old wells going, and permit repressuring methods for obtaining the maximum depletion from our oil sands, for the time will eventually come when the present flush pools are in the 'stripper' class—and no new fields in sight. The settled wells are the back-log of our whole industry. Higher crude prices would prevent the wasteful use of oil in competition with coal, and, if prices advanced to a level making it difficult for oil from this country to compete in foreign markets, these markets could be supplied by United States companies from their refineries in foreign fields with cheaper labor, thereby reducing the volume of our exports which now are a constant drain on our reserves. We, as a nation, are bountifully supplied with oil, but we will not be if we let the economic pressure of low prices skim only 15 per cent to 20 per cent of the cream, and throw away the skim milk—never to be recovered after the wells are once abandoned, and, in the last analysis, leave us dependent on foreign oils."

Southeastern Ohio

A. E. Faine of New Straightsville, Ohio, picturing the conditions in Ohio, said:

"What we want, as oil men, is a chance to live. We want a fair share of the profits that accrue to our industry and the producers, of all the men identified with oil, get the smallest share of the profits. In fact, he is not getting any. He is on the red side of the ledger, and I bring this warning, that this cannot continue and that the conservation movement, to be really conservative, must save to this country the hundreds of thousands of little oil wells that will yet bring forth millions, and hundreds of millions of barrels of oil, and if this condition prevails much longer, they will be junked, those fields will be abandoned, and no one will have the temerity to go back into those fields to reproduce oil and the oil that is so vitally needed in future considerations for this country will have been left in the ground, and true progress means that the people who are engaged in this industry will be given an opportunity to produce their product just as other industries are producing their product in this country. We are entitled to our fair share of the world market, and the principle of protection of American industry should be applied to the oil industry, just as to the steel manufacturers and the wheat farmers of the plains."

W. S. Hallinan of Charleston, W. Va., representing the governor of his State, said:

"West Virginia is one of the old states in oil production. We have a settled production of Pennsylvania crude. Our average production as of January of this year is, in round figures, 13,000 bbls. per day, and that production comes from more than 19,000 wells, bringing home to you this fact, that the average production of a West Virginia well is less than three-fourths of a barrel per day. Our credit balance is $1.85 per barrel, and it cannot be produced at a cost of less than $3.10 to $3.25 a barrel, with the inevitable result that each day the wells are being abandoned necessarily, the farmers losing their royalties and the oil man is facing bankruptcy."

Jurisdiction of Senate

Senator Shortridge of California, author of the bill for a tariff, devoted almost an hour of the time alloted by the Committee on Commerce to hear the oil men, Friday. He presented legal argument to prove it was constitutional to have a bill for the regulation of commerce containing an import tax originate in the Senate.

As all bills for the raising of revenue by the terms of the constitution must originate through the House of Representatives many people have questioned the propriety of initiating such a measure in the Senate.

Senator Shortridge emphasized that the purpose of the legislation sought was to regulate commerce, the import tax being merely an incidental means for carrying the act into effect.

"This is emergency legislation," said Senator Shortridge. "I was given to understand that if a bill were introduced into the House providing for a tariff on oil it would not make great progress as it would be subject to amendment to raise or lower the tariff on hundreds of items which might result in no legislation being enacted in this session.

"You may pass a law placing an embargo on importation of petroleum as provided in the Capper bill but my joint resolution for a tariff is in perfect accord with the Constitution of the United States."

Senator Shortridge reviewed the effort made in the last session for an oil tariff bill and said he had no doubt there were many senators who voted against that bill last year who would be ready to vote for it in this session.

However, the committee and the oil men have no intention to center their efforts in attempting to obtain a tariff, but will devote all their powers to enacting the Capper bill calling for an embargo.

Ralph Arnold's Testimony

After Senator Johnson called the committee to order, Ralph Arnold of Los Angeles continued his statement saying he estimated that in the oil fields in this country today there is a sufficient supply of oil for 140 years.

"Venezuela and Colombia to my mind will be the big oil producers of South America," said Doctor Arnold. "None of the other countries offer any large amount of production. Venezuela probably will produce 10 times as much as Colombia."

Doctor Arnold said the Dutch-Shell probably controls 70 per cent of the oil reserves of Colombia and the balance is under the control of Americans. Doctor Arnold explained that American exports of oils are rapidly decreasing because Venezuela is supplying these products to the foreign trade and can produce oil cheaper than it can produce it in the United States.

Senator Johnson, chairman, expressed a desire to know just why 16,000,000 bbls. of oil have been decided upon as the proper amount to be imported into this country annually during the next three years under the provisions of the Capper bill.

"Is this amount substantially the amount of the curtailment in oil production in the United States at this time?" he asked.

Doctor Arnold: "I figure it that way."

Senator Thomas of Oklahoma read a large assortment of statistics showing imports and exports of petroleum during a number of years, into the record and then Senator Vandenburg wanted the witness to make a general statement as to how much influence is exercised by pipe line distributing systems of the companies under control of the big producers.

Doctor Arnold said substantially the big producers did control pipe line transportation but he insisted that the great threat to the industry was on account of oil imports. It was true, he said, that after stopping the flow of foreign oil into this country the oil men may have some other things to ask from Congress.

Senator Thomas explained how the large oil companies being prorated on their own oil production would have to purchase other producers' oil when they can no longer draw on Venezuelan oil. This explanation was brought out when some one thought the oil producers generally would not be benefited because once an embargo should be in effect the large companies would produce all of their own oil.

Labor and Unemployment

A distinctive feature in the proceeding of the committee was the introduction of representatives of organized labor all of whom declared their knowledge of the nonemployment in the oil field and favored the proposed embargo. Edward F. McGrady, of the American Federation of Labor, said the 100,000 people out of employment in the oil field normally received from $4.50 to $18 per day and average $7 a day wages. This indicated a loss of wages $700,000 a day, he said.

Otto J. Lovell spoke for the Brotherhoods of Railroad Employes.

J. G. Laughlin of the Brotherhood of Engineers; William Clark, representing railway conductors; and J. A. Farquharson, representing railway trainmen; G. C. Cone, representing railway signal men; H. L. Lowell, representing locomotive firemen; and A. F. South, representing employes of the railroads, all advocated legislation to keep out foreign oil.

Thomas Asks for Tariff Report

A sensational statement was made by Senator Thomas before the committee of commerce at Saturday's session which he declared was "not on the record."

Someone had inquired when the report of the United States Tariff Commission in response to the congressional resolution directing the commission to investigate prices of delivering crude oil to New York from Venezuela and from the Mid-Continent oil field, would be sent to Congress. Senator Thomas said the report had been promised tentatively for January 15. He said the commission gave the information it would try to get it out by that time if it could be done. Now, he explained, a letter sent by Henry P. Fletcher, chairman of the commission, in reply to an inquiry sent to him by Representative Garber of Oklahoma stated that the report could not be delivered before February 17 which is the last day for making it under the terms of the resolution. Then the Oklahoma senator, saying to the official stenographer that the words he would speak were "off the record," surprised the committee and the assembled oil men by declaring "there has been an effort to withhold this report until such time as we have no chance to consider it."

Senator Johnson: "The effect of that would be to make it impossible to pass this emergency legislation."

Senator Thomas replied that would be the effect as Congress would have only 15 days preceding adjournment to consider and pass this legislature. He then read the letter of Representative Garber to the Tariff Commission together with Chairman Fletcher's reply. This reply stated that much preliminary work had been done on this report prior to the appointment of the new commission and when the new commission was finally appointed it preceded at once with the investigation and that the report would be sent to Congress February 17, 1931.

Senator Thomas said he expected to get the report about February 17 and explained his statement that it was being withheld was on information that had been given him.

Harrison Objects

Another complication which may hamper the committee in its labors was the notice given by Senator Pat Harrison of Mississippi in the Senate that he would move the discharge of the committee on commerce from further consideration of the two oil measures before it—the Capper bill for an embargo and the Shortridge bill for an import tax—with a view to having these two bills referred to the Finance Committee of the Senate.

Senator Johnson declared he would resist the passage of such a motion because his committee had not sought jurisdiction of these measures, they had been referred to his committee and considerable time had been spent in discussing them and it was too late to have them withdrawn.

Senator Gore was inclined to believe the contention of the Mississippi senator might be correct so far as the bill providing for a tariff was concerned but he was certain that the Capper bill providing for an embargo was properly before the commerce committee and he gave an extended historical review showing precedent for his statement. Senator Shortridge defended his bill as properly before the commerce committee because it was an act to regulate commerce and was not for the purpose of raising revenue. The Cotton Futures bill and the Oleomargarine bills were not treated as revenue raising bills although there was incidental taxation attached to them.

Senator Johnson: "Having taken up the subject of these bills and having proceeded to consider them in this committee it is neither timely nor appropriate to have another committee take charge of them."

Thomas Talks About Prairie

Senator Thomas in discussing the needs of the oil industry referred to the Prairie Oil & Gas Co., which he stated was once a subsidiary of the Standard Oil Co., saying the Standard owned large blocks of stock of that company.

Senator Thomas: "Several months ago the Standard asked the Prairie Oil & Gas Co. to cut the price of oil and that company refused to comply with this request. Immediately thereafter the Prairie Oil & Gas Co. began to feel the competition they had in the field. One by one refineries began to cancel contracts for taking their oil and they lost a very large majority of customers for the oil they were selling. All at once three of the new pipe line companies began supplying oil to the refineries thus cut off from the Prairie Oil & Gas Co. This oil had been handled by three pipe lines and the building of new ones provided six or seven such pipe lines

(Continued on Page 114)

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ATTENTION OIL MEN: We recently opened a pipe yard in Henderson, Texas. Stock of pipe consists of 1" to 15½" casing. Also have several complete rotary rigs for immediate shipment. Louisiana Iron & Supply Co., Shreveport, La., Phone 2-6385; Henderson, Texas, Phone 180.

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For gasoline, production, pipe line and drilling branch of oil industry. Enormous stocks of equipment to choose from at minimum cost. Let us save you money by serving as a medium through which to buy and sell your used equipment.

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16" LANDIS pipe machine. Complete, 95% new. 24"x22' Bradford lathe, 6" hole in spindle; taper attachment; complete. 12"x10" Ingersoll-Rand Type ER1 air compressor. Motor drive, complete. Also large stock of other machine tools. Five hundred machines in stock. Send for catalog. Terms to responsible parties.
Cincinnati Machinery & Supply Co.
26 W. Second St. Cincinnati, Ohio

45—320 Cubic foot belt-driven Tandem two-stage air compressors. High pressure, complete, like new. Cheap.

MERTES MACHINERY CO.
Milwaukee, Wis.

206,000 FEET of J.&L. 6-inch line pipe; 1,500-pound test; 3 Miller gas engines 125 h.p. direct connected to National Tansit 18x4½ pumps, 3 extra pumps same size. All kinds and sizes of fittings. All used but in excellent condition. Inquire of Pantex Pipe Line Co., Amarillo, Tex.

FOR SALE—EQUIPMENT

FOR SALE—GAS-POWERED, LATE MODEL Sullivan Diamond Core Drill. Write Box E-405, The Oil and Gas Journal, Tulsa, Okla.

EQUIPMENT WANTED

WANTED—Rotary with 6-inch drill pipe and tool joints, grief stem bushings, slips and break-out tongs. Give full information as to condition, location and price first letter. William H. Cater, 2643 W. Monroe St., Chicago, Ill.

WANTED
75,000 feet 6-inch Line Pipe.
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Send full description on what you have to offer. Must be good used pipe. Quote price f.o.b. cars your loading point. Send reply to Box E-406, The Oil and Gas Journal, Tulsa, Okla.

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OIL located before drilling. Geophysical method. Toggodometer Instrument; take pay in oil. No oil, no pay, except traveling and testing expenses, 95 per cent accuracy. O. P. Coffin, Caddo, Tex.

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We announce a new service for investors, Unit Holders, Royalty buyers, on field operation, leasing and Royalty activities, and other pertinent information, of all companies engaged in the Petroleum business. Fee One Dollar. Petro-Facts, P. O. Box 351, Oklahoma City, Okla.

LOCATING INSTRUMENT, responsive to oil, gas or hidden treasures underground. Particulars free. Services reasonable. Write Box E-407, The Oil and Gas Journal, Tulsa, Okla.

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with established sales organization and clientele able to finance themselves in handling part of an issue of lease interests selling at $20 per interest including bonus of stock in company now drilling a well with finest of standard equipment. Each interest shares in 50,160 acres. Clean deal, finest geology, everything in its favor. Very appealing to the investor. Have literature, blue sky permit in Kansas and Missouri. Practical oil men heading proposition. Want New York connection, also St. Louis, Wichita and other cities. This deal is clean and a permit can be obtained in any state. Address Hershfield Oil Development Co., 909 Fairfax Bldg., Kansas City, Mo.

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YOUNG COUNTY, Texas, shallow oil field; can furnish 20 or 40-acre tracts for immediate development; producing horizon 520 to 600 feet; also shallow production. Box 31, Graham, Tex.

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List your surplus with us.
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COMPLETE REPORT and valuation made on producing properties—royalty and other interests in Mid-Continent field by practical and experienced man. Small or large interests reported on. Personal inspection made. Fred W. Eastman, 1302 Philtower Bldg., Tulsa, Okla.

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Successful operator has 5,000 proven acres; getting franchises on adjoining towns; wonderful ground-floor opportunity; financial co-operation desired. 311 Huron Bldg., Kansas City, Kans. Drexel 3323.

DEEDED MINERAL interest spread covers 6 tracts one under 5,000 barrel well in Rusk County new field. Write for map. ¼ mineral rights 142 acres Bee County 1,200 feet from 450 barrel well $250.00 basis. 7,905.5 acres new 10 year paid up lease ¼ royalty same term Edwards County, Texas, in active line of play $1.25 acre. Stieren & Koenig, Alamo National Bldg., San Antonio, Texas.

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YOUNG man, married, no children, with 10 years' experience as electrical metering engineer and field engineer and superintendent of telephone, electrical transmission, distribution and substation construction desires connection either domestic or foreign. Will prove valuable asset to any oil company or utility. References furnished. Write Box E-404, The Oil and Gas Journal, Tulsa, Okla.

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REFINER with perfected process; can construct, available at once. Write Box E-402, The Oil and Gas Journal, Tulsa, Okla.

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The OIL and GAS JOURNAL
TULSA, OKLA.

Fair Demand for Gasoline in Chicago

Good Weather Stimulates Sales on Contract but Same Condition Slows Movement of Kerosene and Other Burning Oils

By John B. Waldo

CHICAGO, Feb. 2.—There was no change in the market today. There was a fair movement of gasoline on contract but the spot demand was light. The bulk of the spot business went at 4¼ cents with scattering sales reported at 4⅜ cents. Major refiners still name 5 cents as their spot price but are getting little of the spot business. There were a number of inquiries in the market from jobbers regarding future orders and more interest was shown although it did not go to the extent of placing orders now. The jobbing trade is still of the belief that February will not be as good a month as to road and weather conditions as was January. Several jobbers report that their January business proved to be better than they expected.

The kerosene demand is very light, one of the largest refiners not being sure that his office had moved a car all of last week. In the furnace oil group, the weather has so reduced the consumption that jobbers are beginning to worry about having too much oil in storage and many will put a stop to all shipments until they need the oil. There has been no change in price but it is admitted that a couple of weeks more of this weather might bring an easier market.

There were few inquiries from the industrial trade in the market this morning and heavy fuel continued very quiet. Lubricating oils were quiet. Obviously the weather is to blame for much of the lack of business in all except gasoline.

Last week was one of marking time in the Chicago territorial market. This is usually the case the last week of the month to some extent, but last week the tendency to put off buying was specially noticeable. There will, in all probability, be much less storing of gasoline for the spring of 1931 than for several seasons past. Several of the larger buyers in this territory have stated that they do not intend to put in any quantity of gasoline before the opening of the season. Last season those who stocked largely in the early spring ran into a declining market and barely came out with no loss on their stocked gasoline. This year they say there is no probability of a price advance in the refinery market, which will make up for the cost of storing gasoline. It has been estimated that the cost of storing gasoline put in at this time, would be 1 cent a gallon for the next 60 days and the jobbers do not believe that their gasoline will cost them as much as a cent a gallon more at the end of 60 days than it does today. Of course the ideas of jobbers vary, but the result is the same and that is a present determination not to store any material amount of gasoline this spring.

This determination on the part of the large Middle West jobbers will make quite a difference with the refiners from whom they have been making the bulk of these purchases. Last spring the reports of refinery shipments showed such a large increase over the preceding year that the trade was much encouraged at the prospect of a good business. This year they may not have the reports of such good increase. Last week some of the lack of animation in the buying was caused by reports of the hearings in regard to increasing the output of the Oklahoma City Field. Every extra gallon of crude secured would at once be run through refineries and adding to the stocks of gasoline and other products, which are being pressed for sale in this market at less than the cost to refine. Not only will this be the case but more distant refiners are already planning to run their crude from the Oklahoma City Field to their plants cutting off all contracts with their local producers.

The price situation showed but little change during the week. One day something took place which seemed to show a stronger market and the next day the case was reversed. One of the most depressing influences was the low prices so freely quoted by Tulsa brokers for February. For U. S. Motor specification 4 cents was the common quotation. In one case a refiner who buys a little gasoline for certain stations, was quoted 4⅛ cents, the gasoline coming from a reliable Oklahoma refinery. It is assumed here that the 4-cent material is coming from North Texas as the refiners there have quoted the same figure. A considerable quantity of "60 Navy" was purchased from a Texas refinery at 4 cents by a local marketer. The demand continued to be very largely for the U. S. Motor grade although considerable business was done in the 60-62 gravity at very little higher prices than were paid for the 58-60 437. The market for the higher gravities has continued quiet at unchanged prices. Refiners state that they are receiving their February shipping instructions on contracts in good shape, although there are some who are a little slow in ordering especially from the rural districts. The demand for blending naphthas has not been as active, many having bought for their needs and declining to pay the present market which is generally 3¾ cents Group 3. The demand for natural gasoline has been fairly good and more business could have been done if the gasoline could have been bought. The Grade A, and AA, have been scarce. One order for five cars of Grade A took several days to fill, for it seemed that every refiner of natural gasoline was sold ahead on these grades.

Little Change in Kerosene

There has been little change in kerosene. Some report a better business while others see no improvement. There has been no improvement in the price and one of the larger sellers has permitted his salesmen to go to 2⅞ cents for orders and some marketers have been offered 41-43 kerosene at 2¾ cents which appears to be the usual distillate quotation. Salesmen who have been out in the central parts of this state report that many fields are all plowed and all that is needed is a little work with the disks to make them fit to receive the seed.

Furnace Oils

Furnace oils have moved along in steady fashion but the demand has lacked snap. The weather continues most spring-like with barely freezing temperature at night. This is easy for the house owner but is hard on the oil man. The demand for distillates has been less active and the supply more abundant than with other furnace oils. The lower freight rate on gas oils than on distillate is the cause for a more favorable price to the consumer. The usual price of a good gas oil is about three-fourths cent less than of a good distillate and this is quite a saving. As the oil burner has been obliged to compete with coal on the ground of expense the burner makers have resorted to gas oil for fuel. Of the prominent burners in this market only one requires distillate for fuel in its present design. Several of the earlier burners required distillate but they have been changed and the use of distillate for fuel does not make the increase that gas oil has made. There is some talk of easier prices for the distillate but it is not observable as a rule. One of the sellers in this market wrote a large number of refiners for their price over February and the only quotation received was 2¾ cents. This appears to be the bottom price as yet for a good distillate. Some oil that was not sweet and some with a 36-38 gravity was offered at 2½ cents but it would cost the seller much more than that if he attempted to deliver it to any distributor of furnace oils. Gas oils of the zero type are still very firmly held and the supply while adequate to the present demand is not, so far as can be learned, excessive. This condition would seem to have resulted from the fact that the falling off in consumption has been offset by a reduction in the quantity of zero gas oils refined. Prices are holding at former levels. The demand for the straightrun gas oil has been slack and the price is at least one-eighth cent less at the refineries. Gas oil of the U.G.I. grade has been freely offered by refiners at 1¾ cents and this explains why so many bids at 2 cents or a little less have been turned down as too high. The light gravities in fuel oils are also rather scarce in this market and firmly held. Some of the refiners are now reducing their stocks as rapidly as they can without sacrificing prices. They figure that the chance of much really cold weather is too remote for them to count on it and plan to have a limited supply on all grades by the end of the season which with the refiner is usually some time in March. Opponents of oil for heating have worked diligently this season against it and in favor of their own product be it coal or gas. This city is bound to become a real center of the fight for we are to have a large supply of natural gas to be marketed by the beginning of next season. The coal men have been most persistent in claiming that they can save the user money by burning coal.

Industrial Fuel Oils

The dealers in industrial fuel oils report that there is no change in their commodity. The demand is distinctly disappointing right now. Requisitions for February shipments have been limited in number and for small quantities. The last large order was for the delivery of 400,000 gallons of fuel oil to the Gary plant of the Illinois Steel Co. The general business situation is slowly improving but is still very far from satisfactory. The United States Steel Co. is reported to be operating its works at 50 per cent of capacity but other plants are doing much less. There are a good many plans forming for construction work of various kinds but it is too early for the orders for material for these buildings to be on the market. The brick people are doing little while the cement mills are doing a fair business. The outlook is unsettled, uncertain and badly mixed. In spite of the efforts to find employment for all, the number of the unemployed is increasing. This condition is the major reason for the light demand for fuel oils. Prices are generally firmly held and the grades that might possibly be purchased a little cheaper are the kinds that are not wanted right now. The 18-22 and the 16-20 gravities with a low sulphur and a zero cold test are scarce and the market is being ransacked by some dealers who have none of the wanted kinds of oil for their trade. The condition is no better in the country districts where there are many idle plants and others that are working at a low level of production.

Lub Oils Quiet

Lubricating oils are described by some sellers as the deadest item in the list of petroleum products. There is some movement of the winter motor oils but it is not as large as the business should be at this season. The demand for industrial lubricating oils is still quiet. Bright stocks are easy and a little lower in price both the western and the Pennsylvania grades selling at around 17 cents. Western naturals are also easier in this market. Buyers who put off making their purchases until after the first of the year are still finding reasons for delays in ordering their full requirements.

Question of Prices

The feeling has been expressed by members of the industry that the trade was over a volcano in the matter of the posted tank wagon and service station prices. The margin is too wide for safety although so long as it holds it is very welcome to the jobber. But several influences are at work to make a price cutter out of a perfectly ethical jobber. Many jobbers have not sufficient capital to carry a large number of accounts on their books for a long period. They must sell as much as they can to the cash trade and to do this they must offer some inducement. What inducement has the jobber to offer except a reduction in the price of the gasoline.

While the price scale is being fairly well maintained there is a feeling that almost anything may happen. A few points have been cut by the major distributors and others may be, for the smaller concerns are cutting their quotations. In Detroit which has only recently been placed on a normal basis some price cutting is going on by smaller concerns and it only needs one of the larger to start to meet this competition and the whole city would be under reduced rates in a day. It was sincerely hoped by many jobbers that the refinery price might be advanced to the point where there would be only a fair margin of profit between the cost of gasoline laid down and the normal service station price.

LITTLE CHANGE IN GULF COAST REFINERY MARKET

HOUSTON, Tex., Feb. 2.—Gulf Coast refinery markets apparently were marking time the past week and prices seemed to be pegged at existing quotations of the past several weeks. Both buyers and sellers were agreed that there was little in sight to stimulate any upward trend for the present.

Efforts of refiners to hold down runs to stills have lent an optimistic tone to the market but in the face of the possibility of development of several new large potential crude sources a generally uncertain feeling exists in most quarters. For the time being refiners evidently are in fair situation, with stocks moderate, although demand is inactive and comparatively little material is being moved outside regular channels Fuel oil quotations for cargo sailings continued firm at a minimum of 65 cents, but like in other products there has been virtually no new demand for this. An occasional quotation of a few cents under that figure is made, but this is for material not meeting full Bunker C specifications. The chief movement is for coastwise trade to established connections. Bunker C oil for bunkers remains steady at 90 cents with barge lot quantities of fuel being quoted from 85 to 90 cents.

No further trading has developed in gas oil which is steady from 3⅛ to 3¼ cents. Sellers are holding to this figure following the apparent cleaning of this market several weeks ago in several substantial purchases.

Pale and red oils are at a standstill at fairly uniform quotations from all sources. While these products always are subject to a more or less competitive range of prices lately there has been less tendency to concessions than usual. Although demand at this time is not active yet some sources report a good volume of business to routine outlets.

Spot gasoline is being maintained at a minimum of slightly less than 6 cents generally.

Improved Tone of Eastern Market

Better Gasoline Situation Favorable to All Products. Much Depends on Continuance of Crude Curtailment

By A. E. Mockler

New York Bureau, The Oil and Gas Journal, Rooms 1919-21, No. 154 Nassau Street

NEW YORK, Feb. 2.—The first month of 1931 has witnessed substantial improvement in the underlying tone of East Coast refined products markets and the trade goes into February in a most hopeful frame of mind. Success has attended the efforts of East Coast refiners in their efforts to restore a stable market for refinery gasoline, and, barring any upset in the proration program in the Southwest, with resultant overproduction of both crude and gasoline, it is expected that the eastern market will be on a materially stronger basis by the time the summer motoring season begins.

There is still considerable talk in trade circles here regarding the imminence of a mark-up in both refinery and retail gasoline prices, but no increase has developed as yet and it is believed that principal interests here will not be disposed to force the market from a price standpoint.

Stabilization of the gasoline situation has been reflected by a better feeling in the market for other products, principally fuel, Diesel and lub oils. Steadier markets are looked for on the former two products and operators are hopeful of some price recovery in the lub oil market, which has experienced severe depression during the past several months, together with a marked curtailment in volume of business. Other refined products are also expected to reflect the improvement in the general market situation.

Refinery Gasoline

Refinery sentiment regarding U. S. Motor gasoline is still decidedly bullish, but there has been no advance during the week, and the posted quotation holds at 7 cents per gallon at principal East Coast refinery terminals, with California U. S. Motor quoted one-half cent per gallon over this figure by one leading seller.

Mild weather has made for continued heavy consumption during the week, and tank car movement from refineries has been well sustained. The statistical position of the market in this area experienced a setback, with refinery holdings in the East Coast area on January 24 totaling 6,476,000 bbls., as compared with 6,177,000 bbls. on January 17 and 5,790,000 bbls. on January 10.

Refiners here are expected to further modify their gasoline output during the next several weeks to avoid further substantial accumulations of motor fuel. Every effort will be made, it is indicated, to get the market in a strong statistical position before the start of the summer motoring season, and it is expected that a curtailment of gasoline shipments into South Atlantic territory from South America will make for a decided improvement in the situation.

Concentration on premium fuel sales is still reported by most of the large integrated companies in this territory, particularly those with their own retail marketing divisions, and there has been a decided gain in consumption of these high test fuels during recent weeks. With all of the new automobiles now coming into use equipped with high compression motors refiners expect that there will be a consistent gain in premium fuel sales and this increase will continue notwithstanding any temporary effects of the recent period of depression which now seems to be drawing near a close in this area. Aside from premium fuels, refiners are steadily working to improve the quality of their regular price fuels, paying particular attention to quick starting properties.

Tank Wagon Gasoline

Narrowing of the spread between tank wagon and service station quotations to 1 cent per gallon, together with the elimination of discounts and the drive to bar "bootlegged" gasoline marketed in evasion of state tax laws, has brought about a much healthier condition in the tank wagon situation in East Coast territory, and prices are steadily firming up.

While there is still some spread between the "official" posted prices at the pumps and the figures at which business is actually being done, it is expected that the industry will shortly succeed in re-establishing the tank wagon market on a stable basis, and that considerable of the price cutting which has been so demoralizing during the past several months will soon be a thing of the past.

The stronger position of the refinery gasoline market has led to general expectations of an advance of 1 cent per gallon in tank wagon and service station prices throughout Atlantic Coast territory, but it is not believed that such an increase will be made until the refinery market is up to 7½ or 8 cents per gallon.

Weather conditions throughout the territory have been favorable during the past week, and marketers reported a well-sustained demand for both regular and premium grades of motor fuel.

Kerosene

A well-maintained demand for kerosene at refineries has made for a steady market, and refiners continue to quote 41-43 water white at a range of 6¼ to 6½ cents per gallon in tank car lots, the latter figure being the official posted quotation. Reports from principal marketing points in the East indicate that 6¼ cents is "bottom" on spot business, and buyers who have been shopping the market in an endeavor to bring to light offerings at 6 cents flat have been unsuccessful in their quest.

Tank wagon demand for kerosene is holding up unusually well, and it is expected that volume for the season in this division of the market will show some increase over that for last season. Many consumers who normally use coal have been utilizing kerosene heaters to a great extent this winter, and this added consumption is expected to hold over the balance of the season. Prices for tank wagon deliveries of kerosene remain unchanged.

Paraffin Wax

A steadier undertone has developed in the local market during the past week, and prices are higher on a number of melting points. Spot 125-127 a.m.p. is up an eighth at 3⅜ cents per pound, with corresponding increases shown on 130-132 a.m.p. and 133-135 a.m.p. at 3¾ and 4⅜ cents per pound, respectively. England has been in the market for paraffin wax in some volume this week, but domestic demand has been disappointing, and recent inquiries have not led to any substantial amount of actual business.

Resales of paraffin wax at concessions have tended to disturb the market position somewhat, but refiners have not been inclined to meet the low prices established in such sales and it is generally believed that this distressed resale material is now pretty well out of the way, and that the market will slip back into the hands of the "regular" trade.

Gas Oil

Conditions in this division of the market have shown little change during the week. The posted price for 28 plus recycled gas oil is held at 5¼ cents per gallon in tank car lots at the refinery, but most sellers are shading this figure and sales are being made all the way to 4¼ cents.

Refiners have curtailed their gas oil output during recent weeks, and sellers in the New York harbor area are looking for an early firming-up in the market position, with the spot market expected to stabilize around 4¾ cents in the near future. Demand is well maintained, and the outlook for the near future is regarded as more favorable.

Diesel Oil

Standard Oil Co. of New Jersey has reduced Diesel oil 15 cents per barrel at the Canal Zone, the new change, which was effective January 27, being $1.65 per barrel. There has been an unusually heavy movement of both Diesel oil and bunker "C" at the zone during the past few weeks, ships engaged in the winter cruise business fueling at that point.

Locally, there has been some improvement in the demand for Diesel oil, with both spot sales and contract movement showing some improvement. Sentiment in the market appears decidedly better, and it now appears probable that recent price reductions at East Coast ports have fully readjusted the market to the changed conditions resulting from the condition of oversupply during the latter part of 1930.

Shipments of California Diesel oil to the Atlantic Seaboard during the past several weeks have fallen off, and it is reported that nothing in the way of intensified competition in Diesel oil can be looked for from the Pacific Coast in the near future.

Fuel Oil

A steadier undertone has developed in the bunker oil market, with prices unchanged. East Coast refiners are making a determined effort to lower their fuel oil stocks and are meeting with some success in this endeavor.

Stocks of fuel and gas oils at East Coast refineries as of January 24 totaled 8,400,000 bbls., as compared with holdings of 8,553,000 bbls. at the close of the previous week and 8,771,000 bbls. as of January 10.

There is some price cutting under the posted price of $1.05 a barrel at refinery terminals on industrial business, notably in the Philadelphia area, but in the marine market practically all of the principal factors are firm at the posted level.

Lub Oils

There has been some improvement in the demand for cylinder oils during the past week, and the market tone has stiffened somewhat. Price changes are lacking, but refiners are showing decidedly stronger views and are reluctant to talk concessions on spot sales. A number of the weaker holders among cylinder oil refiners have succeeded in liquidating considerable of their surplus stocks during the past several weeks, and with interest in Pennsylvania cylinder oils on the increase among marketers, sentiment among refiners is decidedly better.

Export buyers have been showing more interest in cylinder oils during the week under review, and operators expect that the inquiries which came in during the week will be followed up with some real buying.

More activity is reported in red and pale oils, with industrial consumption definitely on the increase. Textile oils, in particular, are showing more activity and tank car movement from refineries is picking up steady as consuming manufacturers come back in the market for additional supplies. Prices of red and pale oils remain steady.

Petrolatum

Domestic inquiry for petrolatum has shown some improvement, sellers report, and prospects for further improvement in demand are regarded as favorable.

Petrolatum prices are holding steady, and with sellers holding considerable business on their books for delivery during the next few months, a steady outlook is reported.

Export buying of petrolatum has shown improvement since the turn of the year, and considerable inquiry for additional quantities for export is reported reaching sellers.

Imports

Imports of crude and refined petroleum at the principal United States ports for the week ended January 24 totaled 2,052,000 bbls., a daily average of 293,143 bbls., compared with 1,719,000 bbls., a daily average of 245,571 bbls. for the previous week and a daily average of 272,500 bbls. for the four weeks ended January 24. Details follow:

	Bbls. of 42 gals.
At Atlantic Coast ports—	
Baltimore	79,000
Boston	133,000
New York	1,093,000
Philadelphia	341,000
Others	299,000
Total	1,945,000
Daily average	277,857
At Gulf Coast ports—	
New Orleans and Baton Rouge	107,000
Total	107,000
Daily average	15,286
At all United States ports—	
Total	2,052,000
Daily average	293,143
Daily average four weeks	272,500

Distribution of total imports is as follows:

Crude	1,332,000
Gasoline	369,000
Fuel oil	351,000

Petroleum Exports

Substantial improvement in export movement of refined petroleum products locally during the week ended January 24, increases being recorded on practically all products listed. While a little of this movement was reported to be on new business, much of the products which went into export channels during the week represented shipments on business closed during the closing half of December.

The following table shows principal exports of refined petroleum products from New York for the past three weeks (all figures in gallons unless otherwise noted):

	Week ended		
	Jan. 24	Jan. 17	Jan. 10
Gasoline	170,000	75,000	15,000
Naphtha	425,000	60,000	20,000
Kerosene	325,000	40,000	165,000
Fuel oil	30,800	120,000	5,000
Lubricating oil	1,900,000	728,000	1,405,000
Petroleum, ref.	1,980,000	170,000	50,000
	Pounds		
Petrolatum	275,000	.....	10,000
Paraffin wax	2,200,000	1,400,000	1,450,000
Refined	990,000	50,000	180,000
Scale	270,000	685,000	90,000
Lubricating grease	1,565,000	1,130,000	565,000

There was a little more export inquiry in the market for lub oil and paraffin wax during the week, and interest in gasoline also appeared a little more active. Operators here are looking for an early recovery in demand, expecting that the firmer basis prevailing on refined products in domestic markets will stimulate confidence among foreign buyers.

Export Market

Activity in the Gulf export market continued rather slack during the week, the only trade reported being the sale of a 9,000-ton cargo of 64-66 for February shipment to France at 5⅞ cents per gallon. There were no other cargo fixtures reported and no new inquiries developed.

An inquiry for an 8,000-ton cargo of Venezuelan crude for export to Europe was reported in the market during the

week, but up to the time of writing this business had not been closed.

No further inquiry for Mexican crude developed during the week, and the market remained unchanged.

California refiners have been shipping gasoline into export channels in fair volume during the past several weeks, but little of this business has reached the open market.

California Oil Receipts

Receipts of California crude and refined petroleum at Atlantic and Gulf Coast ports for the week ended January 24 totaled 76,000 bbls., a daily average of 10,857 bbls., compared with 526,000 bbls., a daily average of 75,143 bbls. for the previous week and a daily average of 60,679 bbls. for the four weeks ended January 24. Details follow:

	Bbls. of 42 gals.
At Atlantic Coast ports—	
New York	76,000
Total	76,000
Daily average	10,857
At Gulf Coast ports—	
All ports	None
At Atlantic and Gulf Coast ports—	
Total	76,000
Daily average	10,857
Daily average four weeks	60,679

Distribution of total California oil receipts is as follows:

Gasoline	76,000

Shipments of California refined products for East Coast ports during the week (with identity of owner of tanker moving the oil where such owner is an oil company) follows:

To New York—81,500 bbls. of gasoline on the David McKelvy (Tide Water).

To Philadelphia—54,900 bbls. of gasoline on the Point Breeze (Atlantic Refining Co.), and 81,000 bbls. of gasoline on the Antietam.

Charter Market

The tanker market shows little change this week, say Funch, Edye & Co. in their weekly summary. Transatlantic demand for tonnage continues for part cargoes only. American charterers are asking for clean vessels for February-March loading for South America and Transpacific trades. Black Sea charterers were more active and there are prospects of further business developing. Several vessels are offering cheap for time charter, but charterers are displaying no interest. Business for black oil carriers Transatlantic reported last week is still being quoted. The American coastwise market was fairly active with fixtures as reported and rather more inquiry exists in this trade with anticipations of slightly higher rates.

Fixtures for the week were as follows:

American steamer D. J. Morgan, 9,125 tons deadweight, crude, Gulf to Boston, 17½ cents prompt.

Norwegian M/S Nyholm, 8,250 tons deadweight, dirty, Black Sea to U.K./Continent, 10 trips, 9/6 first, five voyages, 10/6 second five, continuation.

American steamer Cities Service Kool Motor, 9,829 tons deadweight, five trips to Gulf to North Hatteras, current market rates, maximum of 17 cents, commencing February, extension of a previous charter.

Norwegian steamer Vaarli, 8,900 tons deadweight, dirty, 12 months' time charter, continuation, commencing March, 1932, 4/9.

Norwegian M/S Solstad, 8,170 tons deadweight, clean, part cargo, 6,000 tons, Trinidad to U.K., 9/-, February.

Norwegian M/S Sommerstad, 8,225 tons deadweight, clean, Palembang to U.K./Continent 15/-, February.

Norwegian M/S Varg, 8,250 tons deadweight, clean, Constanza to two ports Continent 8/-, March.

American steamer Gertrude Kellog, 7,540 tons deadweight, dirty, Gulf to Boston, 17½ cents February (recently).

Norwegian steamer Jenny, 6,750 tons deadweight, vegetable oil, Black Sea to U.K./Continent, 11/6, February.

MOVES OFFICES

The National Tube Co. has moved its field engineering office from 726 Exchange Bank Building to 1205 Philtower Building, Tulsa. W. J. McKee, assistant field superintendent, has been in Tulsa on business connected with the company.

OPERATIONS IN NEW YORK-PENN. GAS AREA

(Continued from Page 36)

completed operations in the Medina sands with a flow of 500,000 feet. Cities Service is drilling at 815 feet at Woodhull, Steuben County, on the F. G. Husted. The Belmont Quadrangle Drilling Corp. has completed its well on the Mabel Kelly at Tyrone, Schuyler County, at 2,129 feet, in the Oriskany sand with an estimated flow of 3,850,000. The well on the Gilbert at Wirt, Allegany County, New York, is dry in the Oriskany sand at a depth of 4,814 feet and they are going to the Medina sands.

The Oriskany Drilling Co., on the Horace Beyea at Barrington, Yates County, New York, is down 1,200 feet. The Shore Gas Co., drilling on the George Valentine, at Boston, Erie County, New York, has reached the same depth. J. F. Carpenter, drilling on the D. Mawney at Tyrone, Schuyler County, New York, has shut down at 2,075 feet because of 500 feet of salt water. P. W. Lupher, drilling on the Yost Yenny at Onandaga, Onandaga County, New York, has reached a depth of 4,242 feet. The Iroquois Gas Co., on the E. L. Johnson at Golden, Erie County, is drilling at 1,800 feet.

The Bellmont Quadrangle Drilling Corp. is ready to drill on the George Sproul at Tyrone, Schuyler County, New York. The Finance Co., on the Remington farm at Hanover, Cattaragus County, New York, has completed a well at 3,000 feet with open flow of 1,000,000 feet. This company has a well down 200 feet on the Lester Cage at the same place. The Iroquois Gas Co., on the Harry Weils at Perrysburg, Cattaragus County, is drilling at a depth of 2,400 feet. At Freedom, the same county, the company is rigging up on George Burns. The Republic H. & P. are drilling at 1,325 feet on the Pete Cabage, at Villenova, Chautauqua County, New York. J. D. Engle is preparing to drill on his own farm at Orange, Schuyler County, New York. Paul Benedum has a location on the John C. Murphy near Elmira, Chemung County, New York. The Belmot Quadrangle Corp. has a location on the Edward Losey in Tyrone, Schuyler County, New York. Paul Benedum is rigging up on the Roy Perkins at Rathbone, Steuben County, New York.

CALIFORNIA FIELDS

(Continued from Page 48)

field's No. 1 Belridge may be changed upon conclusion of the projected production test, but this is more of a possibility than a probability. The Standard suspended drilling operations about 10 days ago on No. 1 McPhail at 4,528 feet due to the present unfavorable status of the Ohio's No. 1 Bloemer. In the Lost Hills Field of Kern County, the Universal Consolidated, a subsidiary of the Richfield, is making preparations to make an early production test on its No. 49 in Section 32-26-21 at 5,006 feet.

KANSAS FIELDS

(Continued from Page 40)

Sampson, NW cor., Section 24-13-27w, is dry and abandoned at 4,813 feet.

Marion County

Youker and others' No. 2 Riffel, SW cor., Section 11-17-4, is spudding.

McPherson County

Olsen and Shell Petroleum Corp. made location for No. 1 Russell, C SE SE, Section 3-19-2w. Twin Drilling Co. and Phillips Petroleum Co. and Shell Petroleum Corp.'s No. 1 Dielman, C NE NW, Secton 22-19-2w, is a rig under construction. Shell Petroleum Corp. and Olsen's No. 1 Johnson, SE cor. NW SE, Section 36-19-2w, is preparing to deepen from 3,027 feet. Mid-Kansas Oil & Gas Co. made location for No. 1 Whitwright, SW cor., Section 30-19-1w. Lario Oil Co. and Shell Petroleum Corp. made location for No. 1 Locquenent, NW cor. SW NE, Section 6-20-1w. E. F. Jones and Shell Petroleum Corp.'s No. 1 Flook, SW cor. NE, Section 1-20-2w, has been completed for 2,738 bbls. in chat 2,938-81 feet.

Pawnee County

Phillips Petroleum Co. and Deep Rock Oil Corp.'s No. 1 Culbertson, C NE, Section 27-20-18w, has been abandoned at 4,271 feet.

Rooks County

Stearns & Streeter and Billings moved the rig in for No. 1 Levengood, SE cor. SW NE, Section 11-9-16w. Signal Oil Co.'s No. 1 Rude, NE cor. SE SE, Section 28-15-13w, made 309 bbls. from sand 3,349-52 feet.

Sedgwick County

Graham Brothers Oil Co.'s No. 2 Rapp, SW cor. NW NW, Section 22-26-2, is a rig on the ground. Derby Oil Co.'s No. 1 Cloud, SE cor. SW, Section 19-27-2, Eastborough Field, has been deepened to 3,307 feet and completed for 300 bbls.

Sumner County

Harris & Haun and others' No. 1 Duncan, C NE SW, Section 15-35-2, has been completed for 60 bbls. in chat 3,417-45 feet after plugging back 10 feet.

Stevens County

Texas Interstate Pipe Line Co. and others made location for No. 1 Carson, C NE, Section 19-32-38w. Location has also been made for No. 1 Costly, C NE, Section 32-33-38w. No. 1 Patterson is a location, C NW, Section 28-33-37w. Location has been staked for No. 1 Phillips, C NW, Section 1-34-38w. Location for No. 1 Greenwood has been made, C NE, Section 2-34-38w. No. 1 Stuart, C SW, Section 12-34-38w, is also a location. Texas Interstate Pipe Line Co. and Stevens County Oil & Gas Co. made location for No. 1 Stuart, C SE, Section 12-34-38w. Texas Interstate Pipe Line Co. and others' No. 1 Johnson, C NW, Section 6-34-37w, is a location.

MICHIGAN FIELDS

(Continued from Page 46)

proved Muskegon Field at present than for several weeks with several wells being deepened from the Dundee to the Monroe formation. None has reached the Monroe yet, although one well has been cased and probably will be drilling in this week. It is the Muskegon Oil Co.'s No. 1 Bouwsma, SW NW NE Section 5-10n-16w, Muskegon Township, Muskegon County.

An old Upper Traverse well, the Puritan Oil Corp.'s No. 1 Nick Overcamp, NW SW Section 8-10n-16w, Muskegon Township, was plugged at 1,689 feet deep.

Oceana County

Pumping of the Fruitvale Land & Lot Owners' No. 1 C. J. Sipple, SW SW Section 23-13n-16w, Otto Township, Oceana County, revealed possible production of only 5 to 10 bbls. a day in the upper Traverse formation. There was considerable water in the hole before the contractor was ready to pump the well. It made 5 bbls. the first day and 7 the second. Oil was struck several weeks ago at 1,954-60 feet and the well was shot with 40 quarts before being tested on the pump.

Newaygo County

The Butler Syndicate's No. 1 Ardell E. Douglass well, NW NW Section 26-13n-12w, Everett Township, Newaygo County, is reported cased and shut down above the upper Traverse formation.

Two other wildcat wells are drilling in Newaygo County, one at more than 5,000 feet and the other above the Traverse.

SOUTHWEST TEXAS FIELDS

(Continued from Page 42)

an is starting No. 2 Wood-Welder, several miles northeast of the Schoolfield-O'Byrne Pool. It is 900 feet northwest of the No. 1, which was abandoned at a little below 1,500 feet after it had looked for a time as though it had a chance to make an oil well.

Mid-South Oil Co.'s No. 1 Duckworth in Burleson County, 2 miles east of Clay Station, last week was coring a shale after getting a showing of oil at 2,440-2,510 feet. Total depth last reported is 2,515 feet.

In Falls County, where Eddington and others recently completed their No. 1 Llewellyn for a 32-bbl. well, opening a pool, the same operators are drilling at 700 feet in No. 2.

Another attempt to get a well in northwestern Wilson County is a failure. Rycade Oil Corp. has abandoned its No. 1 Johnson at 3,280 feet in Edwards topped at 3,197 feet and showing sulphur water.

Edwards Lime Shows Oil

In Frio County, A. H. Wray's No. 1 Burns, total depth 3,708 feet, and in the Edwards, which shows some saturation, is making about 2,000,000 feet of gas. The gas is coming probably from 2,360 feet. The well will be bailed. This test is so far removed from the Edwards lime producing area around Luling that it is of special interest. Experience seems to be that the Edwards lime west of San Antonio is more tight and has less opportunity to produce and it is said to be a little tight in this test. A fishing job is holding up the proposition at this time, several joints of 2-inch wash pipe having been lost in the hole.

Laredo District

J. H. Winch got a 20,000,000-foot gas well at 1,430 feet in the No. 1 Bustemente, a little southwest of the Escobas Pool, where oil is produced at 1,300 feet. The Winch well was drilled to be in the field. It had a sand at 1,297-1,301 feet corresponding to the oil-producing sand in the field but it showed gas. Deepened to 1,430 feet, it is a good gas well and opens something entirely new in that territory as there is no other production in that sand nearby.

SPECIAL COMMITTEE TO INVESTIGATE OIL

(Continued from Page 38)

nation, in purchasing crude oil, gasoline, and other petroleum products, by any order or practice of discrimination, boycott, blacklists, or in any manner discriminates against any particular oil field.

Fifth. The organization, capitalization, profits, conduct, and management of the business of such corporation or corporations, company or companies, and corporate combinations, if any.

Sixth. The stocks of crude oil, gasoline, and other petroleum products at refineries or elsewhere in the United States at the end of each year for the years 1928, 1929, and 1930, and the holders or owners thereof.

Seventh. Whether any combination, agreement, understanding, or other relationship exists between corporations, joint stock companies, or combinations engaged in the oil industry and corporations, joint stock companies, or combinations engaged in the operation of pipe lines and local public utilities, and, if so, the effect of said relationship upon the production and sale of crude oil, gasoline, and other petroleum products in the United States.

Eighth. The profits of companies refining and marketing petroleum in the United States for the years 1928, 1929, and 1930, and the component elements of said profits.

Ninth. All other facts as bear upon the recent changes in price of crude oil, gasoline, or other petroleum products or upon any of the foregoing matters.

Places of Hearing

The said committee is hereby authorized to sit and perform its duties at such times and places as it deems necessary or proper and to require the attendance of witnesses by subpoenas or otherwise; to require the production of books, papers, and documents; to employ counsel, experts, and other assistants.

The chairman of the committee, or any member thereof, may administer oaths to witnesses and sign subpoenas for witnesses; and every person duly summoned before said committee, or any subcommittee thereof, who refuses or fails to obey the processes of said committee, or appears and refuses to answer questions pertinent to said investigation, shall be punished as prescribed by law.

Said committee is hereby specifically authorized to act through any subcommittee authorized to be appointed by said committee.

The expenses of said investigation shall be paid from the contingent fund of the Senate on vouchers of the committee or subcommittee signed by the chairman and approved by the Committee to Audit and Control the Contingent Expenses of the Senate.

Manufacture of Natural Gasoline

Kettleman Leads in Total Output Among Western Operators

The Kettleman Hills Field passed all other California fields in natural gasoline production, according to the December report of the Bureau of Mines. The field which has only eight plants produced 15,356,737 gallons of natural gasoline in December on an average of approximately 500,000 gallons daily.

The field's closest competitor was Santa Fe Springs with a total of 14,384,608 gallons daily. The Long Beach Field, which is also one of the older producing areas, had a total output of 14,208,753 gallons for the month. The natural gasoline recovery in the Kettleman Hills area is slightly in excess of 1 gallon per 1,000 feet. A total of 13,665,693,000 feet of gas was run through the plants to secure the December output.

In the older fields of the State the gasoline recovery is much higher, that of Long Beach averaging about 2 gallons per 1,000 feet.

One hundred thirty-eight natural gasoline plants, with a daily indicated capacity of 2,622,500,000 feet, reported a recovery of 66,625,905 gallons of natural gasoline from 46,140,961,000 feet of gas treated in December. This is a decrease of 3,122 bbls. in daily average production.

Utilization of natural gasoline, including shipments, amounted to 1,637,609 bbls., an increase over November of 12,905 bbls. Daily average utilization of 52,826 bbls. was 1,654 bbls. more than daily average production of 51,172 bbls.

Stocks of natural gasoline at the end of December amounted to 1,394,337 bbls., of which 43,013 bbls. were reported by natural gasoline plant operators and 1,351,324 bbls. by refinery operators. This is a decrease of 51,278 bbls. under November stocks. This stock figure of 1,394,337 bbls. is approximately 26½ days' supply at the current rate of consumption.

CALIFORNIA NATURAL GASOLINE PRODUCTION, DISTRIBUTION AND STOCKS DECEMBER, 1930

Production by fields—	Gas treated (1,000 ft.)	Natural gasoline prod. (gals.)
Fullerton and Whittier	556,680	1,160,964
Midway	2,105,623	3,606,893
Huntington Beach	775,980	2,288,469
Kettleman Hills	13,665,693	15,356,737
Long Beach	7,217,601	14,208,753
Richfield	552,474	803,780
Santa Fe Springs	9,539,769	14,384,608
Seal Beach	1,088,968	1,611,858
Ventura Avenue	4,985,947	5,219,421
All other fields	5,622,226	7,984,422
Total	46,140,961	66,625,905

Production by Methods

Type of plant—	Gas treated M.C.F.	Natural gasoline prod. (gals.)
Oil absorption	38,094,603	55,910,055
Compressor	202,523	231,405
Combination comp. and oil absorption	7,843,835	10,484,445
Total	46,140,961	66,625,905
Finished gasoline produced at plants		24,587 bbls.
Distribution—	Bbls.	Bbls.
Stocks first of month		1,445,615
Produced during month		1,586,331
Quantity mixed with crude or unfinished oils	73,094	
Used in blending at refineries	1,079,634	
Shipments	470,414	
Stocks end of month	1,394,337	
Balance*	14,467	
Total	3,031,946	3,031,946
Stocks—	Gallons	Barrels
Natural gasoline held by natural gasoline plant operators	1,806,562	43,013
Natural gasoline held by refineries	56,755,608	1,351,324
Total	58,562,170	1,394,337

*Includes evaporation losses, purchases by jobbers for blending, etc.

MAY LIMIT GAS OUTPUT KETTLEMAN HILLS AREA

LOS ANGELES, Calif., Feb. 2.—If crude oil producers in the Kettleman Hills area of California decide to shut off the high pressure gas zone in the field it will have direct bearing on the quantity of natural gasoline produced. Operators in the field have found that a much larger crude oil production can be secured if they cement off the high pressure Milham zone and complete wells in the deeper Superior zone.

The Superior zone has a very low gas oil ratio in contrast with the Milham zone where it is common practice for wells to produce in excess of 40,000 feet of natural gas for each barrel of oil brought to the surface. It is this relatively high gas ratio that accounts for the fact that approximately one-half barrel of natural gasoline is recovered for each barrel of crude oil, a situation without precedent in any of the major pools of the past.

The possible development in the crude oil production phase is of direct concern in the market for natural gasoline on the Pacific Coast. At present the large production of natural gasoline in the Kettleman Hills area which is in excess of 500,000 gallons daily has brought about a weak market. If production operations are not changed this natural gasoline output will be gradually increased. The new production in the Lost Hills-Belridge Field where one new plant has already been completed also threatens to be an important factor in natural gasoline production of the Pacific Coast.

ASSOCIATED TO OPERATE NATURAL GASOLINE LINE

The Associated Oil Co. has announced plans for laying a pipe line to handle natural gasoline from the San Joaquin Valley oil fields in California to Monterey on the Pacific Coast. The project calls for laying 60 miles of 6-inch seamless steel pipe and the reconditioning of approximately 90 miles of pipe laid 28 years ago.

The company expects to start work by February 15 and have the line completed in 90 days. The new line will start in the North Belridge Field where the natural gasoline output has recently been increased with new plants. From this field the line will extend to Coalinga through Lost Hills and Kettleman Hills. It will connect to an old line at Coalinga and thence to Monterey.

The old line has been used for crude oil transportation for 28 years. Original construction of this section was of lap weld pipe with screw joints and it has been decided to weld all collars to the pipe to assure the nonescape of the volatile product.

Capacity of the combined lines in pumping from Belridge to Monterey will be 5,000 bbls. per day. This amount will be handled by one pumping plant located in the Belridge area. Later it is proposed to double the capacity by installation of a booster plant at Coalinga. Further increases can be developed by installation of additional units along the line.

The Standard Oil Co. of California and Union Oil Co. have lines from Kettleman to Estero Bay, while General Petroleum Corp. has a line from the valley to Los Angeles. All three lines are handling or have handled natural gasoline.

SUBSTANTIAL DECLINE IN OUTPUT AND PRODUCTION DURING DECEMBER

The production of natural gasoline showed a very material decline in December, 1930, when the total output amounted to 176,300,000 gallons, as compared with 178,000,000 gallons during November, a shorter month, and was 187,200,000 gallons in December, a year ago. The major portion of this decrease in production resulted from declines in the California fields. Stocks of natural gasoline held by plant operators reflected the material decline in production and decreased about 700,000 gallons to 24,316,000 gallons. This compares with an increase of about 3,800,000 gallons in December, a year ago.

Compared to December, 1929, Oklahoma showed the largest decline in production. The output in December, 1930, was 41,400,000 gallons which compares with 54,600,000 gallons in December, 1929. A large part of this decrease came from the Greater Seminole area where the December, 1930, production totaled 16,100,000 gallons, a loss of 40 per cent when compared with the output in December, 1929.

(Thousands of gallons)

	Natural gasoline: Production Dec., 1930	Production Nov., 1930	Production Dec., 1929	Production Jan.-Dec., 1930	Stocks end of month Dec., 1930	Stocks end of month Nov., 1930	Blended motor fuel Dec., 1930: Natural gasoline used	Naphtha or other oils used	Stocks end of month
Appalachian	8,300	7,500	10,300	88,000	2,965	2,882	72	87	213
Ill., Ky., etc.	1,100	1,000	1,400	12,300	242	257	....	....	....
Oklahoma	41,400	41,500	54,600	578,600	8,485	8,198	142	121	133
Oklahoma City	3,600	3,400	(*)	36,100	1,077	862	23	....	8
Osage County	6,200	6,000	7,300	75,400	1,715	1,680	2	2	4
Seminole, etc.	16,100	16,600	25,200	253,900	2,323	2,202	28	24	45
Rest of State	15,500	15,500	22,100	213,200	3,370	3,454	88	95	76
Kansas	2,700	2,800	2,800	32,300	947	809	7	1	5
Texas	42,900	43,900	40,000	489,700	8,008	8,889	238	342	110
Panhandle	22,000	22,000	20,100	249,000	3,501	4,586	47	54	33
North Texas	3,800	3,700	4,200	43,600	933	867	51	46	25
West Central	12,100	12,300	12,300	147,600	2,630	2,238	135	238	48
Rest of State	5,000	5,900	3,400	49,500	944	1,198	5	4	4
Louisiana	4,700	4,700	6,200	70,200	739	802	8	5	7
Arkansas	2,600	2,600	2,600	31,800	347	301	196	168	17
Rocky Mountain	6,000	5,600	4,100	55,900	776	935	....	....	....
California	66,600	68,400	65,100	814,100	1,807	1,963	....	....	....
Long Beach	14,200	14,100	15,100	172,900	....	....	....	....	....
Ventura Avenue	5,200	5,000	5,400	60,200	....	....	....	....	....
Seal Beach	1,600	1,600	3,300	26,500	....	....	....	....	....
Huntington Beach	2,300	2,400	3,700	32,600	....	....	....	....	....
Kettleman Hills	15,400	17,200	(*)	(*)	....	....	....	....	....
Santa Fe Springs	14,400	14,900	19,200	205,600	....	....	....	....	....
Rest of State	13,500	13,200	18,400	316,300	....	....	....	....	....
Total	176,300	178,000	187,200	2,172,900	24,316	25,036	663	724	485
Daily average	5,690	5,930	6,040	5,950	....	....	21	23	....
Total (thousands of bbls.)	4,198	4,238	4,457	51,736	578	596	16	17	12
Daily average	135	141	144	142	....	....	....	....	....

*Included under "Rest of State."

Suggest Measures To Prevent Fires At Gasoline Plant

The Booster
Standard Gasoline Co.

The effectiveness of any system of fire prevention and fire fighting is dependent upon three main items:

1. The formulation of a definite plan of action in cases of emergency.
2. A thorough understanding of this plan and his part in its operation by each employe.
3. The maintenance of all fire fighting equipment to its highest degree of efficiency at all times.

The Standard Gasoline Co. fire fighting instructions together with the new fire protection manual, cover preventive information and specific regulation in case of fire to a very complete degree.

All of us are undoubtedly thoroughly versed in our particular functions through careful reading of our own fire fighting instructions and will, as fast as time permits, become equally familiar with the subject matter of the new manual, recently issued.

As points one and two seem to be effectively covered there remains the question of fire equipment. Will it function at a moment's notice with full efficiency? For his own protection each individual should keep as constant a check on this apparatus as he would on any other piece of plant equipment.

The following questions may assist you by calling to your attention phases of this important adjunct to safe operation, any one of which might spell trouble if left uncared for.

The correct answer to each of the questions is "yes." The correction of any condition requiring a "no" answer will constitute a definite increase in potential safety and preparedness.

1. Are hydrant threads clean and free from paint or scale?
2. Are there gaskets in all hose and nozzles?
3. Have you a supply of extra gaskets?
4. Are nozzles connected barely hand tight to all hose stored in rolls?
5. Is all hose stored in boxes rolled double with ends together?
6. Is each hydrant and hose cart supplied with a spanner?
7. Where hydrants have screen caps can these caps be easily removed by hand?
8. Can all hydrant valves be operated by hand?
9. Are hydrant valves properly packed to prevent leaks?
10. Do fastners and doors on all hose and extinguisher housings work freely?
11. Are all main switchboards supplied with a carbon tetrachloride extinguisher?
12. Are carbon tetrachloride extinguishers kept full at all times?
13. Do tags on extinguishers show proper recharge dates?
14. Are foamite and soda acid extinguishers properly placed with reference to the hazard involved?
15. Do you wet and reroll all your rubber lined hose every 60 days?

MAY BUILD PLANT

Work is to begin this week on the construction of a 16-inch natural gas gathering line to transfer production from the 25 wells on the 160-acre Anderson-Prichard Oil Corp. lease, Gibbons (Section 2-11-3w), in the north end of the Oklahoma City Field, to the main gas line of the Indian Territory Illuminating Oil Co., who have contracted to purchase the gas. The Anderson-Prichard corporation is considering the advisability of constructing a natural gasoline plant.

Brief Items for Petroleum Refiners

Cities Service May Acquire Control of Warner Quinlan Co.

The Cities Service Co. has acquired control of the Warner-Quinlan Co. through purchase of common stock according to reliable reports in financial circles. Officials of both the Cities Service and Warner-Quinlan companies refused to make any comments regarding the transaction which has been rumored for several weeks.

The Warner-Quinlan Co. for several years has been one of the largest independent refining and marketing organizations operating on the East Coast. The company has a refinery at Warners, N. J., with a rated capacity of 18,000 bbls. daily. The refinery has Dubbs cracking equipment. Directly and through subsidiary companies, the company has large market outlets in several eastern states.

The company is also interested in producing properties in the Southwest. The bulk of the refinery crude oil supply has been secured from Texas and foreign countries. The company has just completed a pipe line connection and loading rack in the new East Texas development. The Texas crude is transported by tanker from the Gulf Coast to the New Jersey refinery.

The plan to acquire control of the Warner-Quinlan Co. is the second major development since the first of the year involving the Cities Service Co. It was announced last week that the company had acquired a controlling stock interest in the Richfield Oil Co. of California, a large integrated organization with headquarters in Los Angeles.

It is pointed out that the acquisition of the Warner-Quinlan Co. will give the Cities Service Co. additional outlets for the large supply of crude oil of its subsidiary companies in the Mid-Continent. Through the Indian Territory Illuminating Oil Co., the company has approximately half of the production in the Oklahoma City Field and another subsidiary, the Arkansas Fuel Oil Co., is part owner of the discovery well in Gregg County of East Texas and has large holdings in that area.

J. A. TALBOT RECEIVER NAMED

Following institution of friendly receivership proceedings in the federal courts of Los Angeles and San Francisco, against James A. Talbot, until recently chairman of the board of the Richfield Oil Co., Frederick Thompson, of San Francisco, was named temporary receiver in equity for the estate by United States Judges W. P. James and F. H. Kerrigan. Bond was set at $500,000 in each instance. The receiver is vice president of the Pacific Electric Manufacturing Co.

In the petition filed by J. Walter Stead, of Illinois, Mr. Talbot's assets are listed in excess of $4,237,000, and his liabilities at $2,900,500. A large part of the assets are temporarily frozen and the move to appoint a receiver was taken to conserve these assets and bring about a gradual liquidation.

KNOCH TO BURFORD PLANT

H. H. Knoch, formerly superintendent of the Crystal refinery of the Crystal Oil Refining Corp. at Shreveport, has succeeded John J. Thomas, vice president, as superintendent of the Burford Oil Co. refinery at Pecos, Tex. Mr. Thomas has been transferred to Henderson where the East Texas Refining Co. is building a skimming plant. E. V. Campbell, formerly with the Burford company at Pecos, has moved to Henderson where he is treasurer of the East Texas company.

ETHYL GASOLINE SALES NEARLY TWO BILLION GALLONS IN 1930

Sales of Ethyl Gasoline in 1930 aggregated approximately 2,000,000,000 gallons according to an official announcement of the Ethyl Gasoline Corp., which is owned jointly by the Standard Oil Co. of New Jersey and the General Motors Corp. The 1930 sales represented a 48 per cent increase over 1929, which in turn was a large increase over the previous year.

Although Ethyl Gasoline is now sold in several foreign countries the bulk of Ethyl Gasoline sales in 1930 was in the United States with Canada ranking second. Due to the fact that several of the largest sellers of Ethyl Gasoline were not licensed to distribute the product over all of 1930, together with the new licenses which have signed since the first of the year, it is certain that 1931 will show another large yearly increase in sales of Ethyl Gasoline.

Ninety-seven refiners now hold Ethyl licensees. Of these, 33 were added in 1930. By March 1 the remaining four, licensed this year, will begin marketing Ethyl Gasoline. Ethyl licensees now constitute almost all but two of the major refining and marketing organizations in this country.

The refiners licensed in 1931 are Gulf Refining Co.; Shell Petroleum Corp., St. Louis; Shell Eastern Petroleum Products, Inc., New York, and Shell Co. of Canada.

Ethyl Gasoline is now sold through almost 200,000 retail outlets in about 40,000 cities and towns, which include practically every corporate community in the United States and Canada. It is today the largest selling brand of motor fuels.

By the end of 1931 at least one out of four, or 25 per cent of the gasoline pumps in America will be Ethyl pumps, it is predicted. A nation-wide investigation by the field staff of the Ethyl Gasoline Corp. discloses that at present approximately one out of five gasoline pumps is an Ethyl pump. This survey embraced practically every principal highway in America, all pumps between the chief cities being counted and tabulated.

Laboratory System

Expansion of the corporation's national system of testing and research centers, to co-operate with motorists, refiners and the automotive industry, was another notable development in 1930. An engineering laboratory building was completed in Detroit late in the year at a cost of $165,000. New chemical laboratories were also constructed in Kansas City, Mo., and Tulsa, Okla. Another chemical laboratory was opened in New Orleans.

These laboratories are linked with a central laboratory at Yonkers, N. Y., from which the corporation's fuel testing system is directed by Dr. Graham Edgar, former head of the department of chemistry in the University of Virginia.

The corporation's field staff has been increased approximately 20 per cent, and divisional activities have been widened. New men have been added to the staff of each of the corporation's nine divisions, located in Chicago, Baltimore, Tulsa, Dayton, Ohio, Los Angeles, Atlanta, Denver and Toronto. Owing to increasing activity in the Middle West, the Chicago division has been divided, and a new division created with headquarters in Kansas City under the direction of Harold Berg, formerly of the Chicago division.

American Petroleum Building New Plant Near Houston, Tex.

HOUSTON, Tex., Feb. 2.—American Petroleum Co. of Texas has started construction of a 2,500-bbl. skimming plant at Norsworthy, just east of Houston. The plant will consist of two pipe stills, which are being built under direction of the company with R. C. Cooke as superintendent. It is located adjacent to the company's tank farm and shipping terminal at Norsworthy on the Houston ship channel and opposite from the refinery and terminal of the Crown Central Petroleum Corp. at Pasadena.

The tank farm and terminal have been in operation for a number of years. The American Petroleum Co. of Texas is a subsidiary of the American Republics, Inc., a J. S. Cullinan interest. It is the transportation medium for the Republic Production Co. and owns and operates approximately 70 miles of pipe line extending from the Hull Field to Norsworthy. C. S. Cullinan, son of J. S. Cullinan, is directly in charge of operations of the company with W. W. Moore, Jr., as president. This is the first plant to be built by the Cullinan interests.

SHREVEPORT REFINERS ASSURED TEXAS CRUDE

Refiners in the Shreveport area of Louisiana were assured a supply of East Texas crude oil the past week when it was announced that the Arkansas Fuel Oil Co. will build an 8-inch line connecting to the producing area in Gregg County, Texas, a distance of 70 miles. The No. 1 Lathrop of the Moncrief-Farrell-Arkansas Fuel Oil Co., 5 miles north of Longview, was completed in Gregg County last week for a large producer and a rapid development in that area is assured.

The 8-inch line will connect to the Shreveport refineries of the Louisiana Oil Refining Corp. The latter company and the Arkansas Fuel Oil Co. are affiliated with the Cities Service group of oil and gas companies in Arkansas and North Louisiana.

Although the line is being built primarily to serve the Louisiana refinery, its transportation facilities will be available to other refineries in and near Shreveport. The Louisiana refinery has a capacity of approximately 22,000 bbls. of crude oil daily. The Shreveport-El Dorado Pipe Line Co. has a 10,000-bbl. plant at Shreveport and the Stanolind Oil & Gas Co. (formerly Dixie) has a 3,000-bbl. plant. The 10,000-bbl. plant of the Crystal Oil Refining Corp. has been shut down almost a year and according to an official announcement of the past week the management has no plans for the resumption of operations at this time.

The pipe line rate from the East Texas Field to Shreveport has not been announced but it is understood that it will not exceed 15 cents per barrel.

START NEW REFINERY

NEW YORK, Feb. 2.—Shell Oil Corp.'s new refinery at Budapest, Hungary, one of the largest and most modern in Europe, has been placed in operation. The refinery has four pipe lines linking it with tidewater, and will have annual capacity of 600,000 bbls. A large chemical plant is included at the refinery.

OLNEY COMPLETES NEW STILL

The Olney Oil & Refining Co., Wichita, Kans., has completed a new tube still unit at its Olney, Tex., plant. The installation cost is $125,000.

NEW KANSAS REFINERY PLANNED BY SWAIM CO.

The Swaim Oil Co. of Blackwell (Okla) is considering four cities in Kansas to select one as a site for a refinery. The cities are Dodge City, Hutchinson, Winfield and McPherson. Work on the plant, which will cost approximately $750,000, is to begin April 1. Dodge City Chamber of Commerce is reported to have offered a substantial bonus if the plant is located in that city. The Swaim company is drilling a wildcat in the Dodge City area. It has been indicated that the Champlin Refining Co., Enid, Okla., that has filling stations in this part of Kansas, will act as distributor for the new refinery's products.

DAVIS TO NEW YORK

A. L. Davis, chief chemist for the refineries of the Empire Oil & Refining Co. has moved to New York City, where he will establish an office with the Doherty Research Co. as patent attorney. Mr. Davis has had considerable experience in the research departments of the Empire and prior to being made chief chemist of the Empire refineries was in the development department of the Standard Oil Co. of Indiana. He was admitted to the Oklahoma bar two years ago.

ADD CRACKING EQUIPMENT

LOS ANGELES, Calif., Feb. 2.—The Rio Grande Oil Co. is completing plans for the enlargement of its California refinery located at Vinvale. The plant at present has a crude oil capacity of 10,000 bbls. daily and a cracking capacity of 4,000 bbls. daily. The company expects to increase the crude oil capacity and also will add additional cracking facilities.

SUGGEST TRAIN RATES

The suggestion that railroads be permitted to file trainload rates rather than carload rates for transportation of gasoline to meet competition of gasoline pipe lines, has been made by Fred W. Sargent, president of the Chicago & Northwestern Railroad, and commented upon favorably in railroad banking circles. It has been proposed to increase the size of tank cars in order to reduce the cost of transportation by rail.

FOUR RESIGN FROM RICHFIELD

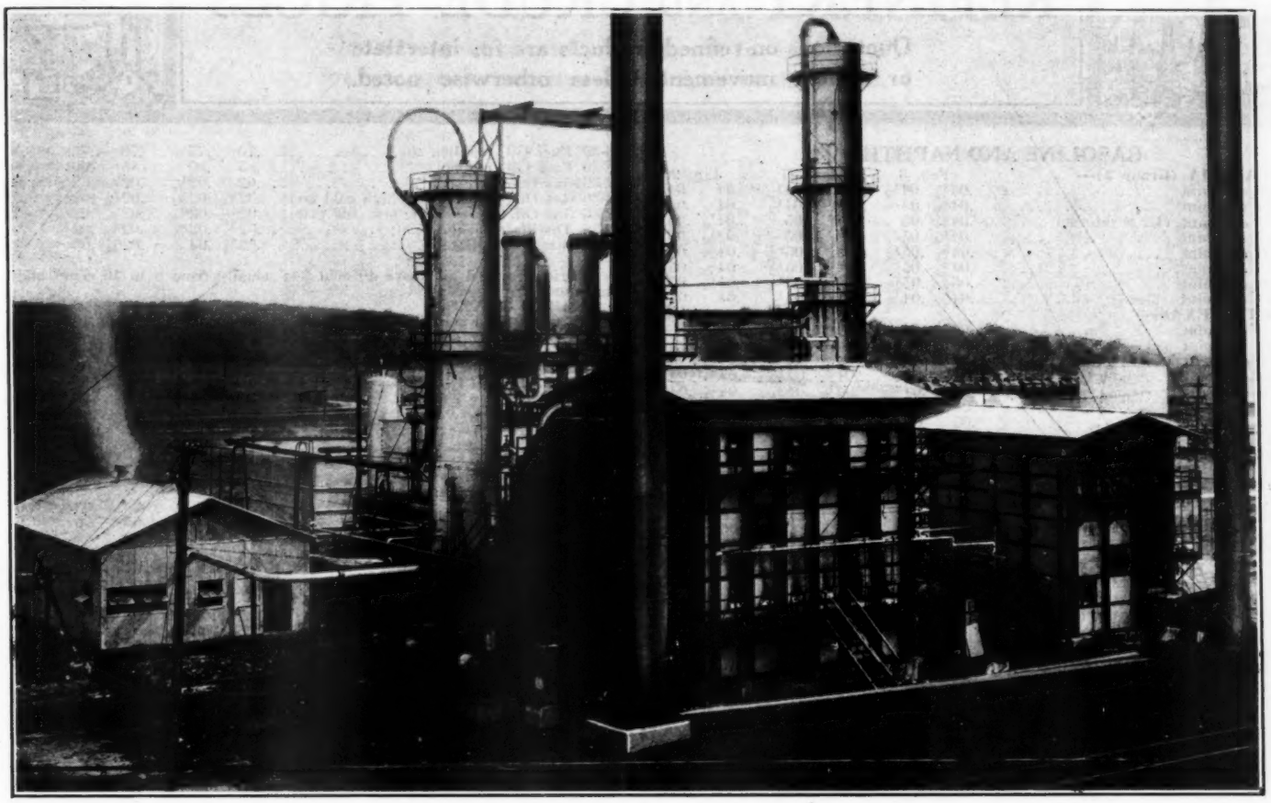
William C. McDuffie, James A. Talbot, S. M. Haskins and Joseph P. Loeb, have been notified of the acceptance of their resignations from the board of the Richfield Oil Co., which recently entered into a receivership in equity. Mr. McDuffie resigned as president of the company when he was appointed federal receiver for the company. Richard Montgomery and R. J. Pagen, of the company, were elected directors.

LARGE TANKER ORDER

NEW YORK, Feb. 2.—Anglo Saxon Petroleum Co. of London has placed contracts for 17 tankers of 11,500 tons each, involving an expenditure of over $17,000,000. Shipyard in the New Castle-ontyne district and other English shipyards will handle the construction.

CONTINUES WHITE OAK OFFICE

CHICAGO, Jan. 31.—The White Oak Refining Co. has decided to continue the office at 208 South LaSalle Street, this city. F. E. Lawson will be in charge. Mr. Lawson has been with the company at this office acting as assistant to the former manager.



DISTILLATION EQUIPMENT

BUBBLE DECKS, BUBBLE TOWERS, TUBE STILL HEATERS,
TOPPING STILLS, REDUCING STILLS, RERUN STILLS,
VACUUM STILLS, CRACKING STILLS

ATMOSPHERIC and VACUUM CRUDE OIL UNITS
COMBINED SKIMMING and CRACKING UNITS
COMBINED PRESSURE and "VAPOR PHASE" CRACKING UNITS

The WINKLER-KOCH ENGINEERING CO.

Consulting and Construction Engineers

WICHITA, KANSAS

L. D. 232

EASTERN REPRESENTATIVE—
Frank de Ganahl
Grand Central Terminal Bldg.
New York City

EUROPEAN REPRESENTATIVE—
A. F. Craig & Co., Ltd.
Paisley, Scotland

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

GASOLINE AND NAPHTHA

OKLAHOMA (Group 3)—	Feb. 3		Jan. 27		Jan. 20	
50-52 450 endpoint	.04¼	.04½	.04¼	.04½	.04	.04¼
56-58 450 endpoint	.04¼	.04½	.04¼	.04½	.04	.04¼
58-60 437 endpoint (U. S. Motor)	.04¼	.05	.04¼	.05	.04¼	.05
60-62 437 endpoint	.04¼	.05	.04¼	.05	.04¼	.05
60-62 400 endpoint	.04⅜	.05¼	.04⅜	.05¼	.04⅜	.05¼
64-66 375 endpoint	.04¾	.05½	.04⅜	.05½	.04⅝	.05½
68-70 360 endpoint	.05	.05½	.05¼	.05½	.05¼	.05½
64-66 437 endpoint (blend)	.04	.04¼	.04	.04¼	.04	.04½
NORTH TEXAS—						
50-52 450 endpoint	.04	.04¼	.04	.04¼	.04	
58-60 450 endpoint	.04	.04¼	.04	.04¼	.04	
58-60 437 endpoint (U. S. Motor)	.04¼	.04½	.04¼	.04¾	.04¼	
60-62 400 endpoint	.04⅜	.04½	.04⅜	.04½	.04⅜	.04½
64-66 390 endpoint	.04½	.04¾	.04½	.04¾	.04½	.04¾
64-66 375 endpoint	.04¾	.05	.04⅝	.05	.04⅝	.05
68-70 360 endpoint	.05	.05¼	.05⅛	.05¼	.05⅛	.05¼
64-66 437 endpoint (blend)	.04	.04½	.04	.04½	.04	.04½
***NORTH LOUISIANA—**						
58-60 437 endpoint (U. S. Motor)	.04½	.05	.04¾	.05¼	.04¾	.05¼
***ARKANSAS—**						
58-60 437 endpoint (U. S. Motor)	.04½	.05	.04½	.05	.04¾	.05
PENNSYLVANIA—						
52-54 Naphtha	.06		.06		.06	
54-56 Naphtha	.06		.06		.06	
58-60 Gasoline	.06		.06	.06¼	.06¼	
60 Gasoline	.06¼	.06½	.06¼	.06½	.06¼	.06½
62 Gasoline	.06½	.06¾	.06¾	.07	.06½	.07
64 Gasoline	.06¾	.07	.07		.07	.07¼
68-70 350 endpoint gasoline	.07½		.07½		.07½	
CALIFORNIA—						
†54-58 437 endpoint (U. S. Motor) domestic	.07	.08½	.07	.08½	.06½	.08
†58-62 400 endpoint domestic gasoline	.08	.09½	.08	.09½	.08	.09¾
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 endpoint (Naphtha)	.04	.04¼	.04		.04	
56-58 450 endpoint	.04	.04¼	.04	.04¼	.04	.04¼
58-60 437 endpoint (U. S. Motor)	.04¼	.04⅝	.04¼	.04¾	.04¼	.04⅝
60-62 400 endpoint	.04⅜	.04⅞	.04½	.05	.04⅜	.04¾
64-66 375 endpoint	.04⅞	.05⅜	.05	.05¼	.04¾	.05¼
64-66 437 endpoint (blend)	.04¼	.04¾	.04¼	.04¾	.04⅛	.04½
68-70 360 endpoint	.05¼	.05½	.05¼	.05½	.05¼	.05½
GULF COAST (Export)—						
58-60 U. S. Motor	.05⅛	.05¼	.05⅛	.05¼	.05⅛	.05¼
60-62 400 endpoint	.05½		.05½		.05½	
61-63 390 endpoint	.05⅞		.05⅞		.05⅞	
64-66 375 endpoint	.06⅛	.06¼	.06⅛	.06¼	.06⅛	.06¼

*Louisiana, Arkansas, Mississippi and East Texas delivery. †For local consumption.

NATURAL GASOLINE

OKLAHOMA (Group 3)—	Feb. 3		Jan. 27		Jan. 20	
Grade A, 72-79.9, 375 e.p., rec. 90%	.03¾		.03¾		.03¾	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.03½		.03½		.03½	
Grade B, 76-83.9, 375 e.p., rec. 85%	.03¼		.03¼		.03	
Grade BB, 84-92, 375 e.p., rec. 85%	.03¼		.03¼		.02¾	
Grade C, 80-92, 375 e.p., rec. 78%	.03¼		.03	.03¼	.02¾	
NORTH TEXAS—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.03¾		.03¾		.03¾	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.03½		.03½		.03½	
Grade B, 76-83.9, 375 e.p., rec. 85%	.03¼		.03¼		.03	
Grade BB, 84-92, 375 e.p., rec. 85%	.03¼		.03¼		.02¾	
Grade C, 80-92, 375 e.p., rec. 78%	.03¼		.03	.03¼	.02¾	
NORTH LOUISIANA—						
Grade AA, 80-87, 375 e.p., rec. 90%	.03¾		.03¾		.03¾	
Grade BB, 84-92, 375 e.p., rec. 85%	.03¼		.03¼		.03	
Grade C, 80-92, 375 e.p., rec. 78%	.03¼		.03¼		.03	
CALIFORNIA—						
75-78 375-390 endpoint	.05	.06	.05	.06	.05	.06
CHICAGO DISTRICT (Based on Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.03¾		.03¾		.03½	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.03½		.03½		.03½	
Grade BB, 84-92, 375 e.p., rec. 85%	.03¼		.03¼		.02¾	.03

BURNING OIL

OKLAHOMA (Group 3)—	Feb. 3		Jan. 27		Jan. 20	
41-43 water white kerosene	.03	.03¼	.03	.03¼	.03	.03¼
42-44 water white kerosene	.03¼	.03¾	.03¼	.03¾	.03¼	.03¾
NORTH TEXAS—						
41-43 water white kerosene	.03	.03⅛	.03	.03⅛	.03	.03⅛
40-41 water white kerosene	.02⅞	.03	.02⅞	.03	.02⅞	.03
***NORTH LOUISIANA—**						
41-43 water white kerosene	.03¾	.04	.03¾	.04	.03¾	.04
***ARKANSAS—**						
41-43 water white kerosene	.03½	.04	.03½	.04	.03½	.04
PENNSYLVANIA—						
43 Kerosene prime white	.04⅞		.04⅞		.04⅞	
45 Kerosene water white	.05		.05		.05⅛	.05¼
46 Kerosene water white	.05¼	.05½	.05⅜	.05½	.05½	
CALIFORNIA—						
38-40 water white Kero. (high burning test)	.04¾	.06	.04¾	.06	.04¾	.06
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white kerosene	.03	.03½	.03	.03¼	.03	.03¼
42-44 water white kerosene	.03¼	.03½	.03¼	.03½	.03¼	.03½
GULF COAST (Export)—						
41-43 prime white	.04¼		.04¼		.04¼	
41-43 water white	.05¼		.05¼		.05¼	

*Louisiana, Arkansas, Mississippi and East Texas delivery.

FUEL OIL

*OKLAHOMA (Group 3)—	Feb. 3		Jan. 27		Jan. 20	
Below 18 gravity Fuel Oil, per bbl.	.42½	.50	.42½	.50	.40	.50
18-22 Fuel Oil, per bbl.	.47½	.55	.47½	.55	.47½	.55
20-22 Fuel Oil, per bbl.	.50	.60	.50	.60	.50	.60
22-26 Fuel Oil, per bbl.	.55	.65	.55	.65	.55	.65
24-26 Fuel Oil, per bbl.	.65	.70	.65	.70	.65	.70
26-30 Fuel Oil, per bbl.	.70	.75	.70	.75	.70	.75
28-30 Fuel Oil, per bbl.	.85	.90	.85	.90	.80	.90
32-36 Gas Oil (industrial)	.02	.02¼	.02	.02¼	.02	.02¼
32-36 Gas Oil (straw color, high cold test)	.02¼	.02½	.02¼	.02½	.02¼	.02½
32-36 Gas Oil (straw color, low cold test)	.02½	.02¾	.02⅝	.02⅞	.02⅝	.02⅞
36-38 Distillate	.02⅝	.02¾	.02¾	.02⅞	.02¾	.02⅞
38-40 Straw Distillate	.02¾	.03	.02¾	.03	.02¾	.03

*Prices on fuel oil above 40 cold test usually from 5 to 10 cents under general quotations.

NORTH TEXAS—						
Below 20 gravity Fuel Oil, per bbl.	.30	.40	.30	.40	.30	.40
24-26 Fuel Oil, per bbl.	.50	.60	.50	.60	.50	.60
32-36 Gas Oil (industrial)	.02	.02¼	.02	.02¼	.02	.02¼
38-40 Straw Distillate	.02¾	.03	.02¾	.03	.02¾	.03
***NORTH LOUISIANA—**						
18-20 Fuel Oil, per bbl.	.70	.75	.70	.75	.70	.75
30-32 Gas Oil (low cold test)	.02⅞	.03	.02⅞	.03	.02⅞	.03
***ARKANSAS—**						
33-36 Distillate	.02¾	.03	.02¾	.03	.02¾	.03
30-32 Gas Oil	.02⅝	.02¾	.02⅝	.02¾	.02⅝	.02¾
16-22 Refinery Fuel Oil, per bbl.	.60	.65	.60	.65	.60	.65
GULF COAST (South Texas)—						
Gas Oil	.03⅛	.03¼	.03⅛	.03¼	.03⅛	.03¼
Bunker C Fuel (cargo lots), per bbl.	.65	.70	.65	.70	.65	.70
Bunker C Fuel (small lots)	.90		.90		.90	
PENNSYLVANIA—						
30-34 Fuel Oil	.03¼		.03½		.03½	
36-40 Fuel Oil	.03½		.03½	.03¾	.03½	
CALIFORNIA—						
33-36 Distillate	.02	.02½	.02	.02½	.02	.02½
26-32 Distillate	.01¾	.02	.01¾	.02	.01¾	.02
15-19 Fuel Oil, Bunker (at tidewater), bbl.	.55	.90	.55	.90	.55	.90
15-19 Fuel Oil (cargo lots, at tidewater), bbl.	.50	.80	.50	.80	.50	.80
†15-19 Fuel Oil, f.o.b. tank cars	.25	.70	.25	.70	.25	.70
27 plus Diesel, per bbl.	.80	1.05	.80	1.05	.80	1.05
30-34 Gas Oil	.85	1.05	.85	1.05	.85	1.05
CHICAGO DISTRICT (Based on Group 3)—						
18-22 Fuel Oil, per bbl.	.57½	.62½	.57½	.62½	.57½	.62½
22-26 Fuel Oil, per bbl.	.60	.65	.60	.65	.60	.65
28-30 Fuel Oil, per bbl. (zero)	.90	.95	.90	.95	.90	.95
32-36 Gas Oil (industrial)	.01⅞	.02	.02	.02⅛	.02	.02½
32-36 Gas Oil (zero)	.02½	.02⅞	.02½	.02⅞	.02½	.02⅞
38-40 Straw Distillate	.02¾	.03	.02¾	.03	.02¾	.03

*Louisiana, Arkansas, Mississippi and East Texas delivery. †Lowest priced fuel oil has high sulphur content.

LUBRICATING OIL AND WAX

OKLAHOMA (Group 3)—	Feb. 3		Jan. 27		Jan. 20	
100 vis., 2 color, 20-25 cold test	.05	.05½	.05	.05½	.05	.05½
100 vis., 3 color, 20-25 cold test	.04¾	.05	.04¾	.05	.04¾	.05
150 vis., 3 color, 20-25 cold test	.07		.07		.07	
150 vis., 4 color, 20-25 cold test	.06½		.06½		.06½	
180 vis., 3 color, 23-28 cold test	.08½		.08½		.08½	
180 vis., 4 color, 23-28 cold test	.08		.08		.08	
180 vis., 5 color, 23-28 cold test	.07¼	.07½	.07¼	.07½	.07¼	.07½
200 vis., 3 color, 23-28 cold test	.09¾	.10	.09¾	.10	.09¾	.10
200 vis., 4 color, 23-28 cold test	.09½		.09½		.09½	
200 vis., 5 color, 23-28 cold test	.09		.09		.09	
240 vis., 3 color, 25-30 cold test	.13¼	.13½	.13¼	.13½	.13¼	.13½
240 vis., 4 color, 25-30 cold test	.12¼	.12½	.12¼	.12½	.12¼	.12½
240 vis., 5 color, 25-30 cold test	.11¼	.11½	.11¼	.11½	.11¼	.11½
280 vis., 3 color, 25-30 cold test	.15½		.15½		.15½	
280 vis., 4 color, 25-30 cold test	.14½		.14½		.14½	
280 vis., 5 color, 25-30 cold test	.13½		.13½		.13½	
Cylinder Stocks:						
600, steam refined, light green	.07	.08	.07	.08	.07	.08
600, steam refined, dark green	.04½	.05½	.04½	.05½	.04½	.05½
190-200 vis., D color, Bright Stocks	.25		.25		.25	
150-160 vis., D color, Bright Stocks 0-10 c.t.	.19	.20	.19	.20	.19	.20
150-160 vis., D color, Bright Stocks 10-25 c.t.	.18	.19	.18	.19	.18	.19
150-160 vis., D color, Bright Stocks 25-40 c.t.	.17½	.18½	.17½	.18½	.17½	.18½
150 vis., E color, Bright Stocks	.17	.18	.17	.18	.17	.18
Waxes:						
124-126 White Crude Scale Wax	.02	.02⅛	.02	.02⅛	.02	.02¼

All bright stock prices are for domestic movement.

PENNSYLVANIA—						
34 Neutral	.05½	.06	.05½	.06	.05½	.06
34 Sundebloom	.05½		.05½	.06	.05½	.06
36 Miners' Neutral	.05	.05½	.04½	.05½	.04	.05
150, 3 color	.11½	.12	.11½	.12	.11½	.12
180, 3 color	.15	.15½	.15	.15½	.15	.15½
200, 3 color	.17¼	.18	.17¼	.18½	.17¼	.18½
220, 3 color	.20		.20		.20	.20½
600, steam refined	.08¾	.09	.08¾	.09	.08¾	.09
650, steam refined	.12½	.13½	.13	.13½	.13	.14
600, Pennsylvania Flash	.13	.15	.13	.15	.13½	.16
630, Pennsylvania Flash	.20		.20		.21	.22
600, E filtered	.13		.14	.15	.14	.15
600, D filtered, Oil City	.17	.19	.17	.19	.17	.19
Pennsylvania Bright Stocks below 35 C.T.	.18	.19	.18	.19	.18	.20
Pennsylvania Bright Stocks above 35 C.T.	.17		.17		.17	.19
*122-124 White Crude Scale Wax	.02⅜		.02⅜		.02⅜	
124-126 White Crude Scale Wax	.02½		.02½		.02½	

*At New York.

GULF COAST (South Texas)—						
100 vis., 2-2½ color, pale oil	.06	.06¼	.06	.06½	.06	.06¼
200 vis., 3 color, pale oil	.08¼	.08½	.08¼	.08½	.08¼	.08½
300 vis., 3 color, pale oil	.09½	.09¾	.09½	.09¾	.09½	.09¾
500 vis., 3½ color, pale oil	.10¾	.11	.10¾	.11	.10¾	.11
750 vis., 3½ color, pale oil	.12¼	.12½	.12¼	.12½	.12¼	.12½
1,200 vis., 3½ color, pale oil	.14¾	.15	.14¾	.15	.14¾	.15
2,000 vis., 4 color, pale oil	.15¾	.16	.15¾	.16	.15¾	.16
200 vis., 5-6 color, red oil	.07½	.07¾	.07½	.07¾	.07½	.07¾
300 vis., 5-6 color, red oil	.08¾	.09	.08¾	.09	.08¾	.09

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

500 vis., 5-6 color, red oil	.10	.10¼	.10	.10¼	.10	.10¼
750 vis., 5-6 color, red oil	.11½	.11¾	.11½	.11¾	.11½	.11¾
1,200 vis., 5-6 color, red oil	.13¾	.14	.13¾	.14	.13¾	.14
2,000 vis., 6 plus color	.15¾	.16	.15¾	.16	.15¾	.16
CALIFORNIA—						
130 vis., 2½-3 color	.09	.09½	.09	.09½	.09	.09½
200 vis., 2½-3 color	.10	.10¾	.10	.10¾	.10	.10¾
300 vis., 3-3½ color	.10¾	.11½	.10¾	.11½	.10¾	.11½
350 vis., 3½-4 color	.11½	.11¾	.11½	.11¾	.11½	.11¾
400 vis., 3½-4 color	.12¼	.12¾	.12¼	.12¾	.12¼	.12¾
Red Neutral:						
200 vis., 4½-5 color	.09½	.10	.09½	.10	.09½	.10
300 vis., 5-6 color	.10¼	.10¾	.10¼	.10¾	.10¼	.10¾
400 vis., 5-6 color	.11	.12	.11	.12	.11	.12
500 vis., 4½-5 color	.12¼	.13	.12¼	.13	.12¼	.13
500 vis., 5-6½ color	.12	.12¾	.12	.12¾	.12	.12¾
600 vis., 6½ plus color	.13	.14	.13	.14	.13	.14

Note—Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) REFINERY PRICES

	Feb. 3		Jan. 27		Jan. 20	
Gasoline, U. S. Motor, 58-60, 437 e.p.	.07		.07		.07	
Kerosene, water white, 41-43	.06¼	.06½	.06¼	.06½	.06¼	.06½
*Fuel Oil, Bunker "C," 41-43	1.05		1.05		1.05	
†Fuel Oil, Diesel, 28-30, per bbl.	1.85		1.85		1.85	
Gas Oil, 28 gravity plus	.04¼	.05¼	.04¼	.05¼	.04¼	.05¼
25 pale Paraffin Oil, tank car	.10¼		.10¼		.10¼	
28 pale Paraffin Oil, tank car	.07¼		.07¼		.07¼	
280 red Paraffin Oil, tank car	.12½		.12½		.12½	
250 red Paraffin Oil, tank car	.11½		.11½		.11½	
225 red Paraffin Oil, tank car	.10		.10		.10	
200 red Paraffin Oil, tank car	.09¼		.09¼		.09¼	
Domestic heating oil, min. 32 grav., tank car	.04½		.04½		.04½	
Refined Wax:						
120-122 a.m.p., per lb.	.03		.03		.03	
125-127 a.m.p., per lb.	.03⅜		.03¼		.03¼	
130-132 a.m.p., per lb.	.03¾		.03⅝		.03⅝	
133-135 a.m.p., per lb.	.04⅜		.04⅜		.04¼	
135-137 a.m.p., per lb.	.04⅝		.04⅝		.04⅝	
Petrolatum in barrels in carload lots, per pound:						
Dark Green	.01¾		.01¾		.01¾	
Amber	.03¼		.03¼		.03¼	
Extra Amber	.03⅜		.03⅜		.03⅜	
Cream	.06		.06		.06	
Lily White	.06¾		.06¾		.06¾	
Snow White	.08		.08		.08	

*Lighterage 5 cents a barrel extra. †Lighterage 6.5 cents a barrel.

NEW YORK (BAYONNE) EXPORT PRICES

	Feb. 3	Jan. 27	Jan. 20
600, steam refined cylinder stocks, in bbls.	.16½	.16½	.16½
635, steam refined	.18	.18	.18
650, steam refined	.22	.22	.22
600, Pennsylvania Flash	.22½	.22½	.22½
630, Pennsylvania Flash	.29½	.29½	.29½
600, Warren E	.23	.23	.23
600, Oil City E	.22	.22	.22
Light 140-150 Bright Stocks	.25 .26	.25 .26	.26
Dark 140-150 Bright Stocks	.23 .24	.23 .24	.24

LOS ANGELES EXPORT PRICES

	Feb. 3	Jan. 27	Jan. 20
Kerosene, water white	.04¾ .06	.04¾ .06	.04¾ .06
*U. S. Motor Gasoline, 53-55, 437 e.p.	.04¾ .07	.04¾ .07	.04¾ .07
*60-62, 400 endpoint gasoline	.06 .08	.06 .08	.06 .08

*For coastwise and off-shore shipments.

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

Corsicana heavy (Oct. 28) $0.75
Other fields ..... See gravity table

TEXAS PANHANDLE

Gray County, Wheeler County and Carson-Hutchinson Counties ..... See gravity table

WEST TEXAS

Iatan* ..... Same as North Texas
Crane-Upton-Crockett, Howard and Glasscock, Mitchell and Ector ..... See gravity table, Column 3
Chalk† (April 10, 1930) $0.75

*Includes Westbrook Field. †Posted by Humble Oil & Refining Co.

ARKANSAS-NORTH LOUISIANA

Smackover (all grades) (Oct. 30, 1930) $0.70
Carterville, Sarepta and Cotton Valley, below 36 gravity ..... See gravity table
Bellevue (Oct. 30, 1930) 1.00
Urania (Oct. 30, 1930) ..... .75
Calion, heavy (Oct. 30, 1930) ..... .70
East El Dorado (Oct. 30, 1930) ..... .70
Other fields ..... See gravity table

Note—Smackover and Bellevue posted by Standard Oil Co. of Louisiana and Magnolia Petroleum Co.; Urania posted by Louisiana Oil Refining Corp.; East El Dorado posted by Gulf Refining Co. and Magnolia Petroleum Co.; Calion posted by Gulf Refining Co.

GULF COAST

Grade A (Jan. 14)* $0.80
Grade B, 25° and upward ... See gravity table
Jennings, La. (Oct. 30, 1930)† ..... .80
Refugio (light) ..... Same as Grade B
Refugio (heavy) (Jan. 14)* ..... .69
Markham (Jan. 16, 1931)‡ ..... .69
High Island (Oct. 30, 1930)† ..... .75

*Humble Oil & Refining Co. †Gulf Refining Co. of Louisiana. ‡Texas Pipe Line Co.

ROCKY MOUNTAIN STATES

Ohio Oil Co.-Midwest Refining Co.

Iles (Feb. 15, 1930) $0.87
33 gravity and above ..... .87
Under 33 gravity ..... .65
Dutton Creek (Oct. 28, 1930) 1.01
Rock Creek, Wyo. (Oct. 28, 1930) 1.01
Salt Creek ..... See gravity table
Big Muddy (Oct. 28, 1930) 1.00
Grass Creek, heavy (July 27, 1928) ..... .90
Grass Creek, light (Oct. 28, 1930) 1.25
Mule Creek (May 21, 1929) 1.20
Elk Basin (Oct. 28, 1930) 1.25
Lance Creek (Oct. 28, 1930) 1.33
Poison Spider (Mar. 14, 1927) 1.00
Notches (Mar. 14, 1927) ..... .65
Dallas-Derby (Jan. 1, 1931) ..... .70
Hudson, (Jan. 1, 1931) ..... .75
Rex Lake (Feb. 22, 1930) 1.10
Osage (Nov. 1, 1930) ..... .85
Lost Soldier (Oct. 28, 1930) ..... .80
Hamilton Dome (Mar. 14, 1927) ..... .85
Greybull (Oct. 28, 1930) 1.25
Torchlight (Oct. 28, 1930) 1.25
Cat Creek (Oct. 28, 1930) 1.25
Pondera (Montana) (Oct. 28, 1930) 1.45
Sunburst (Montana) (Oct. 28, 1930) 1.55
Hogback (Feb. 15, 1930) 1.40
Artesia (New Mexico) (Oct. 28, 1930) ..... .75
Lea County ..... See gravity table
Border, Mont. 1.55
Red Coulee, Alberta 1.55

Note—Salt Creek, Osage, Cat Creek, Dallas-Derby, Hudson, Greybull and Hogback posted by Midwest Refining Co. and the remainder by the Ohio Oil Co. Both com-

(Continued on Page 110)

CRUDE OIL GRAVITY TABLE

Gravity—	1 Oklahoma-Kansas, Central and East Central Texas, North La.-Ark.	2 North Texas (Wichita Falls District)	3 Crane, Upton, Ector, Crockett, Winkler, Pecos, Mitchell (West Texas) Lea, N. Mex.	4 Wheeler County (Texas Panhandle)	5 Gray County (Texas Panhandle)	6 Carson and Hutchinson (Texas Panhandle)	7 Salt Creek, Wyo.	8 Stephens, Ark.	9 Howard-Glasscock (West Texas)	10 Grade B Gulf Coast and Refugio Texas
Below 25	....	....	.50	....	....	....	....	....	.55	.69
25 to 25.9	....	....	.52	....	....	....	....	....	.57	.71
26 to 26.9	....	....	.54	....	....	....	....	....	.59	.73
27 to 27.9	....	....	.56	....	....	....	....	....	.61	.75
28 to 28.9	....	....	.58	....	....	....	....	....	.63	.77
Below 29	.65	.55	....	....	.48	.43	....	.54	....	....
29 to 29.9	.69	.57	.60	....	.50	.45	.69	.58	.65	.79
30 to 30.9	.73	.59	.62	....	.52	.47	.73	.62	.67	.81
31 to 31.9	.77	.61	.64	....	.54	.49	.77	.66	.69	.83
32 to 32.9	.81	.63	.66	....	.56	.51	.81	.70	.71	.85
33 to 33.9	.85	.65	.68	....	.58	.53	.85	....	.73	.87
34 to 34.9	.89	.67	.70	....	.60	.55	.89	....	.75	.89
35 to 35.9	.92	.69	.72	....	.62	.57	.92	....	.77	.91
36 to 36.9	.95	.71	.74	....	.64	.59	.95	....	.79	.93
37 to 37.9	.98	.73	....	....	.66	.61	.98	....	....	.95
38 to 38.9	1.01	.75	....	....	.68	.63	....	....	....	.97
39 to 39.9	1.04	.77	....	....	.70	.65	....	....	....	.99
40 and above	1.07	.79	....	....	.72	.67	....	....	....	1.01

Column 1—Carter Oil Co. posted price schedule for Oklahoma and Kansas on October 28, 1930. Humble Oil & Refining Co. posted for North and Central Texas and East Central Texas on October 28 but made new price schedule on January 14, 1931 affecting North Texas or Wichita Falls district (see Column 2). All other companies adopted Column 1 schedule.

Column 2—Humble Oil & Refining Co. posted above prices on North Texas, Wichita, Wilbarger, Archer and North Young Counties, on January 14; The Texas Company on November 15; Stanolind Crude Oil Purchasing Co. on January 16; Gulf Refining Co. on January 14; H. F. Wilcox Oil & Gas Co. on January 14. Other companies applied the schedule to all North Texas counties in which they bought, including Clay, Montague and Foard.

Column 3—Posted by Humble Oil & Refining Co. on October 28.

Column 4—Companies quit posting April 10, but crude takes present Hutchinson-Carson prices.

Column 5—Humble Oil & Refining Co. posted above prices January 14, 1931; other purchasers adopted schedule.

Column 6—Humble Oil & Refining Co., October 28.

Column 7—Midwest Refining Co. on October 28. All crude over 37 degrees 98 cents.

Column 8—Louisiana Oil & Refining Co. and Atlantic Oil Producing Co., October 30.

Column 9—Humble Oil & Refining Co., October 28.

Column 10—Humble Oil & Refining Co. posted above prices on January 14, 1931, thus meeting the Gulf Pipe Line Co. and Gulf Refining Co. of Louisiana's price schedule posted on October 30, 1930.

CALIFORNIA CRUDE OIL PRICES

Standard Oil Co. (effective September 15, 1930). Union Oil Co. (effective September 15, 1930)

Gravity—	1 Long Beach, Seal Beach, Alamitos Hts. Huntington Beach, Inglewood, Torrance, Richfield, Olinda, Brea Canyon	2 Whittier, La Habra, Coyote Hills	3 Midway-Sunset, Elk Hills, Lost Hills, Belridge, Buena Vista Hills	4 Montebello	5 Santa Fe Springs	6 Santa Maria, Coalinga	7 Wheeler Ridge	8 Orcutt, Ventura, Rincon	9 Ventura Avenue	10 Elwood Terrace	11 Athens, Rosecrans, Dominguez
14 to 14.9	.70	.70	.55	.70	....	.55	.55	.55	.70	....	....
15 to 15.9	.70	.70	.55	.70	....	.55	.55	.55	.70	....	....
16 to 16.9	.70	.70	.55	.70	....	.55	.55	.55	.70	....	....
17 to 17.9	.70	.70	.55	.70	....	.55	.55	.55	.70	....	....
18 to 18.9	.76	.76	.62	.71	....	.62	.62	.65	.76	....	....
19 to 19.9	.82	.82	.70	.77	....	.70	.70	.70	.82	....	....
20 to 20.9	.88	.87	.78	.83	....	.78	.78	.78	.88	....	....
21 to 21.9	.94	.93	.86	.90	.92	.86	.86	.90	.91	....	....
22 to 22.9	1.00	.98	.94	.97	.95	.94	.94	.95	.94	....	....
23 to 23.9	1.07	1.04	1.02	1.05	1.01	1.02	1.02	1.02	1.00	....	....
24 to 24.9	1.12	1.08	1.06	1.08	1.05	1.04	1.04	1.08	1.05	....	1.12
25 to 25.9	1.17	1.12	1.10	1.11	1.09	1.06	1.06	1.11	1.10	....	1.17
26 to 26.9	1.22	1.16	1.14	1.15	1.13	1.08	1.08	1.15	1.15	....	1.22
27 to 27.9	1.26	1.21	1.18	1.19	1.18	1.11	1.10	....	1.19	....	1.27
28 to 28.9	1.30	1.25	1.23	1.23	1.23	1.15	....	....	1.23	....	1.32
29 to 29.9	1.34	1.29	1.29	1.26	1.28	1.19	....	....	1.27	....	1.37
30 to 30.9	1.38	1.33	1.35	1.29	1.33	1.23	....	....	1.31	....	1.42
31 to 31.9	1.43	....	1.40	....	1.38	1.27	....	....	1.36	....	1.47
32 to 32.9	1.48	....	1.47	....	1.43	1.31	....	....	1.41	....	1.52
33 to 33.9	....	....	1.53	....	1.48	1.35	....	....	1.47	....	1.57
34 to 34.9	....	....	1 59	....	1.53	1.39	....	....	1.53	1.32	1.62
35 to 35.9	....	....	1.65	....	1.58	1.43	....	....	1.59	1.39	1.66
36 to 36.9	....	....	....	....	1.63	....	....	....	....	1.46	1.72
37 to 37.9	....	....	....	....	1.68	....	....	....	....	1.53	1.78
38 to 38.9	....	....	....	....	1.73	....	....	....	....	1.60	1.84
39 to 39.9	....	....	....	....	1 78	....	....	....	....	1.66	1.90
40 to 40.9	....	....	....	....	....	....	....	....	....	1.72	1.96
41 to 41.9	....	....	....	....	....	....	....	....	....	1.78	2.02
42 to 42.9	....	....	....	....	....	....	....	....	....	1.84	2.08

Note—Standard Oil Co. of California, effective December 18, 1930, established the following posted prices for oil purchased in the Playa Del Rey Field: 20-20.9 degrees 74 cents; 21-21.9 degrees, 77 cents; 22-22.9 degrees, 81 cents; 23-23.9 degrees, 84 cents; 24-24.9 degrees, 87 cents; 25 degrees and above, 90 cents. Union Oil Co. adopted same price schedule on December 18. On January 20 the Union Oil Co. announced a gathering charge of 5 cents per barrel for receiving and delivering the oil into its pipe line.

Kern River, Newhall-McKittrick, Mount Poso and Round Mountain, 11 to 13.9 gravity, 50 cents; 14 gravity and above 55 cents, effective March 11. On March 11 the Union Oil Co. posted Midway-Sunset, Elk Hills, Buena Vista, Lost Hills and Coalinga crude as follows: 11 to 13.9 gravity at 50 cents. Fruitvale, posted by General Petroleum Co., 11-13.9, 50 cents; 14 gravity and above, 55 cents.

Column 1—Signal Hill, Seal Beach, Huntington Beach and Alamitos Heights crude, 14 to 32.9 gravity, inclusive; Richfield, Olinda-Brea and Fullerton, 14 to 30.9 gravity; Torrance and Inglewood, 14 to 28.9 gravity.

Column 2—Whittier crude, 14 to 22.9 gravity; Coyote Hills, 14 to 30.9 gravity.

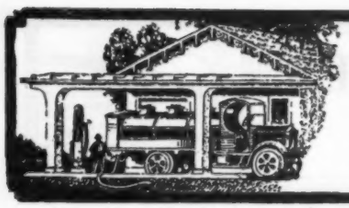
Column 3—Kern River, Newhall and McKittrick, 11 to 19.9 gravity; Midway-Sunset, Buena Vista and Elk Hills, 11 to 33.9 gravity; Lost Hills, 11 to 34.9 gravity; oil below 14 gravity posted at 50 cents.

Column 5—Price change posted by Standard of California September 16.

Column 6—Oil below 14 gravity posted at 45 cents.

Column 8—Posted by General Petroleum Co.

Kettleman Hills—Union Oil Co., September 22, 35 to 39 gravity, $1.10; 40 to 44 gravity, $1.20; 45 to 49 gravity, $1.35; 50 to 54 gravity, $1.50; 55 gravity and above, 1.65. Standard Oil Co. of California, 55 gravity and above, $1.65.



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns Feb. 3

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Chicago*	16.0	17.0	3.0	11.0
Decatur, Ill.	16.4	17.4	3.0	11.0
E. St. Louis	16.7	16.7	3.0	10.2
Joliet	16.4	17.4	3.0	11.0
Peoria	16.4	17.4	3.0	11.0
Quincy	16.2	17.2	3.0	10.8
Davenport, Ia.	16.5	17.5	3.0	11.3
Des Moines	16.5	17.5	3.0	11.3
Keokuk	16.5	17.5	3.0	11.3
Sioux City	16.1	17.1	3.0	10.9
Duluth, Minn.	17.5	18.5	3.0	11.9
Mankato	17.1	18.1	3.0	11.7
Minneapolis	17.2	18.2	3.0	11.9
La Crosse, Wis.	16.2	17.2	2.0	12.0
Milwaukee	15.1	16.1	2.0	10.9
Madison	15.3	16.2	2.0	11.1
Detroit, Mich.	16.8	17.8	3.0	12.7
Grand Rapids	16.7	17.7	3.0	12.6
Saginaw	16.9	17.9	3.0	12.8
Evansville, Ind.	17.1	18.1	4.0	11.9
Indianapolis	17.3	18.3	4.0	12.1
South Bend	17.4	18.4	4.0	12.2
Fargo, N. D.	18.9	19.9	3.0	13.9
Huron, S. D.	18.3	17.5	4.0	12.7
Sioux Falls	17.8	17.0	4.0	12.4
K. C., Mo.	15.9	16.9	3.0	9.6
Springfield†	15.9	16.9	3.0	10.5
St. Louis†	14.9	15.9	2.5	10.3
St. Joseph	15.5	16.5	2.0	10.1
Wichita, Kans.	14.8	13.8	3.0	9.8
Bartlesville, Ok.	15.5	18.5	4.0	9.5

*Effective June 3, discounts on Q.D.A. in Chicago district 4 cents off service station price on purchases of 500 gallons or more per month and 5 cents on purchases of 1,000 gallons or more per month.

†State tax 2 cents; remainder city tax.

Effective August 5, the following quantity discounts from the service station prices are allowed on monthly sales of gasoline: 500 gallons or more, 3 cents; 75,000 gallons or more, 4½ cents. Discounts are allowed each month and they are not cumulative. Delivery tickets showing date and quantity delivered must be sent to the seller before the tenth of the month to secure the discounts on the previous month's purchases.

PACIFIC COAST TERRITORY

Standard Oil Co. (California)

	Gasoline: Wh'la'e price	Gasoline: Retail price	Gasoline: Incl'ds tax of	Kero. tank wagon
Fresno	21.0	21.0	3.0	17.0
San Francisco	21.0	21.0	3.0	15.5
Los Angeles	20.5	20.5	3.0	15.5
Reno, Nev.	26.0	26.0	4.0	19.0
Portland, Ore.	22.5	22.5	4.0	16.5
Seattle, Wash.	21.5	21.5	3.0	16.5
Tacoma	21.5	21.5	3.0	16.5
Spokane	22.0	22.0	3.0	20.5
Phoenix, Ariz.	19.5	21.5	4.0	20.0

Above prices are at company's plant or depots as company does not operate stations. A 4-cent per gallon discount is given dealers and customers taking tank wagon lots except in Phoenix where the discount is 5 cents.

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Atl'tic City, N.J.	14.5	16.5	3.0	11.5
Newark	13.5	15.5	3.0	10.5
Annapolis, Md.	16.0	17.0	4.0	11.0
Baltimore	15.2	16.2	4.0	9.5
Cumberland	17.0	18.0	4.0	12.0
Wash'gton, D.C.	13.7	14.7	2.0	10.7
Danville, Pa.	17.8	18.8	5.0	11.8
Norfolk, Va.	16.3	17.3	5.0	10.0
Petersburg	17.3	18.3	5.0	11.3
Roanoke	18.0	18.0	5.0	12.0
Richmond	16.7	17.7	5.0	10.7
Charles'n, W.Va.	16.5	17.5	4.0	11.5
Keyser	17.1	18.1	4.0	12.0
Parkersburg	15.2	16.2	4.0	10.2
Wheeling	16.4	17.4	4.0	11.4
Charlotte, N. C.	18.3	19.3	5.0	12.3
Hickory	18.6	19.6	5.0	12.6
Mt. Airy	18.5	19.5	5.0	12.5
Salisbury	18.5	19.5	5.0	12.5
Charleston, S. C.	17.3	18.3	5.0	10.3
Columbia	19.3	20.3	5.0	12.3

A 2-cent per gallon discount off the gasoline tank wagon price is offered to dealers.

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Omaha	17.25	18.25	4.0	11.25
McCook	18.75	20.75	4.0	12.75
Norfolk	17.25	17.25	4.0	11.75
N. Platte	18.75	20.75	4.0	13.50
Scottsbluff	18.75	20.75	4.0	13.25

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
N. Orleans, La.*	16.5	18.5	6.0	12.0
Baton Rouge	17.5	19.5	5.0	13.0
Alexandria†	18.5	20.5	6.0	13.0
Lafayette*	18.5	20.5	6.0	13.0
Lake Charles*	18.5	20.5	6.0	13.0
Shreveport	17.5	19.5	5.0	13.0
Knoxville, Tenn.	19.0	21.0	5.0	15.0
Nashville	17.0	19.0	5.0	12.5
Bristol	20.0	22.0	5.0	14.0
Lt. Rock, Ark.	16.0	18.0	5.0	12.0

*Includes city tax of 1 cent. Louisiana kerosene prices include 1-cent state tax. New Orleans kerosene price also includes 1-cent city tax.

†Gasoline price at Alexandria includes 1-cent tax in Parish of Rapides.

One-cent discount allowed off station price on all cash purchases. All other station discounts withdrawn October 2, 1930.

Two-cent discount off gasoline tank wagon price to dealers and commercial accounts.

OHIO

Standard Oil Co. (Ohio)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Ohio points*	16.0	17.0	4.0	†13.0

*Dealers and commercial accounts 2 cents under tank wagon.

†Service station price 14 cents.

PENNSYLVANIA-DELAWARE AND PART OF NEW ENGLAND

Atlantic Refining Co.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Pittsburgh, Pa.	14.0	19.0	...	12.0
Philadelphia	14.0	19.0	...	12.0
Scranton	14.0	19.0	...	12.0
Allentown	14.0	19.0	...	12.0
Altoona	14.0	19.0	...	12.0
Erie	14.0	18.0	...	11.0
Dover, Del.	17.0	19.0	3.0	12.0
Wilmington	17.0	19.0	3.0	12.0
Springf'd, Mass.	17.5	19.5	2.0	10.0
Worcester	17.3	19.3	2.0	10.0
Boston	14.5	16.5	2.0	10.0
Providence, R.I.	12.7	14.7	3.0	10.0
Hartford, Conn.	17.5	19.5	2.0	10.0
New Haven	17.6	19.6	3.0	10.0

*Includes tax of 3 cents. Pennsylvania tax is collected by the dealer and paid by him direct to the State. Atlantic Refining Co. recognizes a 2-cent per gallon discount on gasoline from its posted tank wagon markets on sales to dealers for purposes of resale. Atlantic Refining Co. also recognizes a maximum discount of 2 cents per gallon on gasoline to commercial accounts under contract for one year.

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Atlanta, Ga.	20.0	22.0	6.0	13.5
Augusta	20.0	22.0	6.0	15.5
Macon	20.0	22.0	6.0	13.0
Savannah	19.0	21.0	6.0	14.0
Birm'ham, Ala.	19.0	21.0	5.0	15.0
Mobile	19.0	21.0	4.0	15.0
Montgomery	19.0	21.0	4.0	15.5
Clarks'le, Miss.	18.0	22.0	5.0	13.5
Jackson	18.0	20.0	5.0	13.5
Natchez	18.0	20.0	5.0	13.5
Gulfport	20.0	22.0	5.0	13.5
Vicksburg	18.0	20.0	5.0	13.0
Jack'ville, Fla.	17.0	19.0	6.0	14.0
Miami	19.0	21.0	6.0	14.0
Pensacola	19.0	21.0	6.0	13.5
Tampa	18.0	20.0	5.0	13.0
Lexington, Ky.	17.0	18.0	5.0	14.5
Covington	17.0	18.0	5.0	13.5
Louisville	16.0	18.0	5.0	11.0
Ashland	17.0	19.0	5.0	13.0
Paducah	17.0	19.0	5.0	12.0
Bowling Green	19.0	21.0	5.0	14.5
Corbin	19.0	21.0	5.0	15.0

In addition to the state tax of 4 cents on gasoline, Montgomery has city tax of 1 cent on gasoline and one-half cent on kerosene. Kerosene prices in Georgia include 1-cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama an inspection fee of one-half cent on kerosene and one-fourth cent on gasoline. To Pensacola, Montgomery, Birmingham and Mobile state taxes add 1-cent levy tax. To Gulfport state tax add privilege tax of 3 cents.

Effective April 2, price to dealers 2 cents under posted tank wagon price.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Albany, N. Y.	16.6	17.6	2.0	15.6
New York*	15.3	15.3	2.0	14.3
Buffalo	15.8	15.8	2.0	14.8
Rochester	16.0	16.0	2.0	14.0
Syracuse	16.8	16.8	2.0	14.8
Boston, Mass.	15.5	15.5	2.0	13.5
Augusta, Me.	18.8	18.8	4.0	14.8
Manch'tr, N. H.	18.4	18.4	4.0	14.0
Burlington, Vt.	19.3	19.3	4.0	15.3

*Prices in steel barrels.

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Dallas, Tex.	14.0	17.0	4.0	11.0
Fort Worth	14.0	17.0	4.0	10.0
Houston	15.0	19.0	4.0	11.0
San Antonio	13.0	17.0	4.0	10.0
El Paso	16.0	20.0	4.0	12.0
Texarkana	17.0	17.0	4.0	11.0
Muskogee, Ok.	15.0	18.0	4.0	9.0
Okla. City	13.0	16.0	4.0	10.0
Tulsa	13.0	17.0	4.0	10.0
Ft. Smith, Ark.	17.5	18.5	5.0	12.0
Little Rock	16.0	17.0	5.0	12.0

One-cent rebate made from posted station prices to cash purchasers in Louisiana, Arkansas and Tennessee.

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Denver, Colo.	12.0	15.0	4.0	13.5
Pueblo	14.0	17.0	4.0	13.5
Grand Junction	18.0	19.0	4.0	17.0
Casper, Wyo.	17.0	20.0	4.0	12.0
Cheyenne	18.0	21.0	4.0	13.5
Butte, Mont.	19.0	22.0	5.0	18.0
Billings	20.0	23.0	5.0	16.5
Great Falls	20.0	23.0	5.0	18.0
Helena	20.0	23.0	5.0	18.0
Salt Lake, Utah	19.0	22.0	3.5	17.0
Albu'que, N. M.	16.0	20.0	5.0	14.0
Boise, Idaho*	22.5	....	5.0	19.0
Twin Falls†	22.5	....	5.0	19.0

*Two and one-half cents off tank wagon to dealers at time of delivery. †Three cents off tank wagon to dealers at time of delivery.

STANOLIND FURNACE OIL IN CHICAGO

Less than 100 gallons	9.0
100 to 349 gallons	8.0
350 gallons or more	7.5

Note—Outside Chicago furnace oils discount of 1 cent per gallon is given on deliveries of 100 to 349 gallons and 1½ cents on deliveries of 350 gallons or more.

NAPHTHA

	Tank wagon	Tank car
Oleum spirits	12.0	8.0
V.M.&P. naphtha	14.0	9.5
Cleaners' naphtha	16.2	11.0
Stanisol	16.2	11.0

Tank wagon prices f.o.b. Chicago; tank car prices f.o.b. Whiting.

TANK WAGON CHANGES

Standard Oil Co. (Kentucky) advanced the gasoline tank wagon and station prices 1 cent in Atlanta, Ga., to 20 cents and 22 cents January 19. On January 21 the gasoline tank wagon price in Clarksdale, Miss., was advanced to 22 cents and the kerosene price to 13½ cents. In Gulf Port the gasoline tank wagon and station prices were advanced to 20 cents and 22 cents and the kerosene price to 13.5 cents. In Jackson the gasoline tank wagon and station prices were advanced to 18 cents and 20 cents and the kerosene price was advanced to 13.5 cents. In Natchez the kerosene price was advanced to 13.5 cents. On January 21 the gasoline station price was advanced to 21 cents in Savannah, Ga.

Standard Oil Co. of California reduced the gasoline retail price to 22 cents in Spokane, Wash., January 23.

SHELL-ETHYL DELAYED

CHICAGO, Feb. 2.—The plan as originally formed was for the Shell Petroleum Corp. to begin the distribution of Shell-Ethyl gasoline through its own stations on January 15. The number of stations to be supplied with necessary new equipment, displays and the like has proven too great a task and the Shell corporation now expects to be able to supply its station customers with Ethyl Gasoline between February 15 and March 1. At the same time it will begin the distribution of 100 per cent pure Pennsylvania grade lubs.

REPEAL TAX REDUCTION LAW

Repeal of the law which automatically ends the 3-cent tax on gasoline and returns the 2-cent tax in effect before 1929 when the extra cent was voted to carry out an extensive road building program, was voted in committee of the Kansas House of Representatives recently. The house wishes to prevent reduction of the state funds. The senate committee on roads reported a similar bill.

CRUDE OIL PRICES

(Continued from Page 109)

panies posted Grass Creek light and Elk Basin. Lost Soldier posted by Producers & Refiners Corp. Artesia posted by Ohio Oil Co. and Continental Oil Co. Latter company posted 50 cents per barrel January 1, 1931. Border and Red Coulee posted by Imperial Refining Co.

SOUTH CENTRAL AND SOUTHWEST TEXAS

Darst Creek (Oct. 28, 1930)*	$0.90
Luling (Oct. 28, 1930)†	.75
Mirando (Jan. 14)*	.60
Pettus (Oct. 28, 1930)*	1.10
Salt Flat (Oct. 28, 1930)*	.90
Thrall‡	...
Lytton Springs (Lockhart) See gravity table	
Dobrowolski (Oct. 25, 1930)‖	...
Same as Mid-Continent gravity scale up to and including 38-38.9° at	1.01
Somerset (Oct. 25, 1929)¶	...
Same as Mid-Continent gravity scale up to and including 38-38.9° at	1.01

*Posted by Humble Oil & Refining Co. and Magnolia Petroleum Co. †Magnolia Petroleum Co., Humble Oil & Refining Co., Crown Central Pipe Line Co. ‡Thrall prices same as North Central Texas less 19½ cents per cwt. freight. ¶Grayburg Oil & Refining Co., Pioneer Oil & Refining Co. and Texas Petroleum Products Co. ‖Pioneer Oil & Refining Co.

EASTERN STATES

Joseph Seep Purchasing Agency
(Effective Nov. 12, 1930)

Penna Grade Oil in National Transit Lines (Pennsylvania)	$1.85
Penna Grade Oil in Southwest Pennsylvania Lines (Pennsylvania)	1.80
Penna Grade Oil in Eureka Pipe Line Lines (West Virginia)	1.70
Penna Grade Oil in Buckeye Pipe Line Lines (Ohio) (Sept. 14, 1930)	1.45
Corning Grade Oil in Buckeye Pipe Line Co.'s Lines (Dec. 31, 1930)	1.15
Ragland Grade Oil in Cumberland Pipe Lines (Kentucky)	1.10
Wayne District Oil in Cumberland Pipe Lines	1.17

Tide Water Pipe Co.

Bradford district (Nov. 12, 1930)	$2.15
Allegany district (Nov. 12, 1930)	2.15

Pure Oil Co.

Cabin Creek, W. Va. (Nov. 12, 1930)	$1.70
Kelly Creek, W. Va. (Nov. 12, 1930)	1.70
Bradford Hollow, W. Va. (Nov. 12, 1930)	1.70

MIDDLE WESTERN STATES

Ohio Oil Co.
(Effective Oct. 28, 1930)

Lima	$1.10
Wooster	1.40
Illinois	1.30
Indiana	.87
Princeton	1.20
Plymouth	.89
Western Kentucky	1.15
Midland, Mich.*	1.10
Dundee, Mich. (Oct. 26)†	...
Same as Mid-Continent gravity scale	
Upper and Lower Traverse Sands, Mich. (Oct. 28, 1930)†	...
Same as Mid-Continent gravity scale	
Cumberland, Clay, Barren, Clinton and Monroe Counties, Kentucky (Oct. 28)‡	.85
Oil City, Ky.§ (Jan. 14)	.80
Oil Springs (Canada) (Oct. 28)¶	1.57
Petrolia (Canada (Oct. 28)¶	1.50

*Posted by Pure Oil Co. †Posted by Standard of Indiana for boat shipment. ‡Posted by Paragon Development Co. §Posted by Stoll Refining Co. ¶Posted by Imperial Oil, Ltd.

MEXICAN CRUDE

Panuco*	$0.56

*F.o.b. ship, based on December transactions and exclusive of taxes and bar dues.

ALL ROADS SEEM TO LEAD TO EAST TEXAS

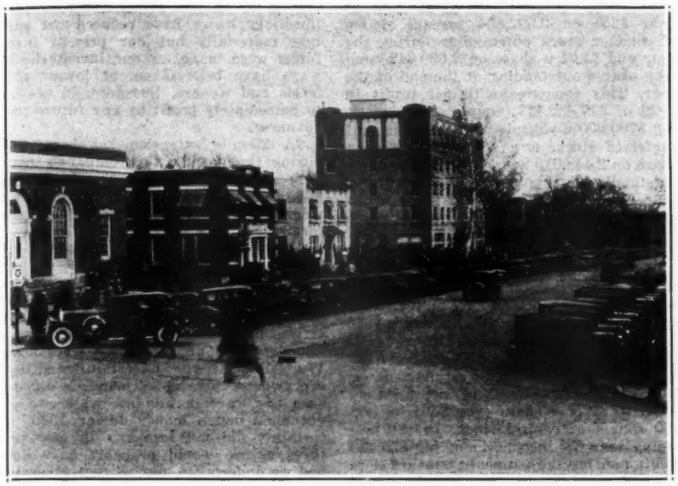
(Continued from Page 23)

Lathrop in Gregg County is being laid a distance of 3 miles to a 40-car loading rack on the Texas & Pacific Railroad near Willow Springs, approximately 4 miles west of Longview. The Arkansas Fuel Oil Co., part owner of the discovery well, and owner of 3,100 acres around the well, is constructing this line and will soon commence construction on an 8-inch welded line from the well to the Louisiana Oil & Refining Co.'s refinery at Shreveport, a distance of around 70 miles. Both companies are subsidiaries of the Cities Service Corp.

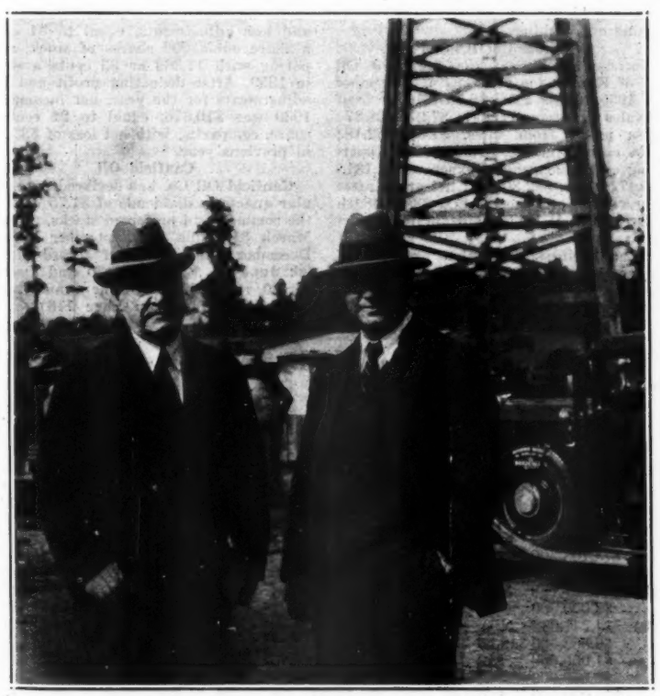
The Lathrop well was tested on January 24 after coming in on the twenty-third, and on the test it made a potential gauge of 17,364 bbls. production in 24 hours, only being opened one-half hour. On January 23 when it came in it made 320 bbls. in one-half hour. Total depth is 3,587 feet, and 18 feet of sand was cored, 6⅝-inch casing being cemented at 3,550 feet. Arkansas and Louisiana operators are of the opinion that the sand from which the Farrell-Lathrop, Bateman discovery and Joiner Field wells are producing is the Tokio sand which is the producing sand in Arkansas and Louisiana, but Texas operators, especially fault line operators, believe the sand is the Woodbine. Whatever it is, it yields high gravity sweet oil.

John E. Farrell, independent operator of Fort Worth, formerly in the land department of the old Marland Oil Co. at Fort Worth, was mainly responsible for the discovery well in Gregg County. He financed the block and closed contracts on the leases and the drilling of the test on the Lathrop farm in the William Robinson Survey. Eddie Showers, drilling contractor, and W. A. Moncrief, independent operator of Fort Worth, and former vice president of the old Marland Oil Co. of this city, hold a one-fourth interest in Mr. Farrell's remaining 3,000-acre block, and Bill Noble and Romaine Baker hold an interest in the block. Frank R. Foster, drilling contractor and producer in the Joiner Pool, and M. G. Jeffries, his partner in business, drilled in this new discovery. They formerly drilled in the 1-mile western extension well in the Joiner Field, the Foster, Deep Rock Oil Co. and others' No. 1 Ashby, and are at present drilling several other wells in this field, ready to bring in their No. 1 Bradford, an offset to the former producer which is the largest in the field, capable of producing around 8,000 bbls. per day.

The Farrell-Arkansas Fuel Oil Co. and others' No. 1 Lathrop is now pinched in to 5 bbls. per hour flowing into four 1,000-bbl. tanks which were erected to handle the present production. Drilling of the well consumed 35 drilling days, the well being shut down for 10 days to allow cement to set. W. A. Andrews was the driller.

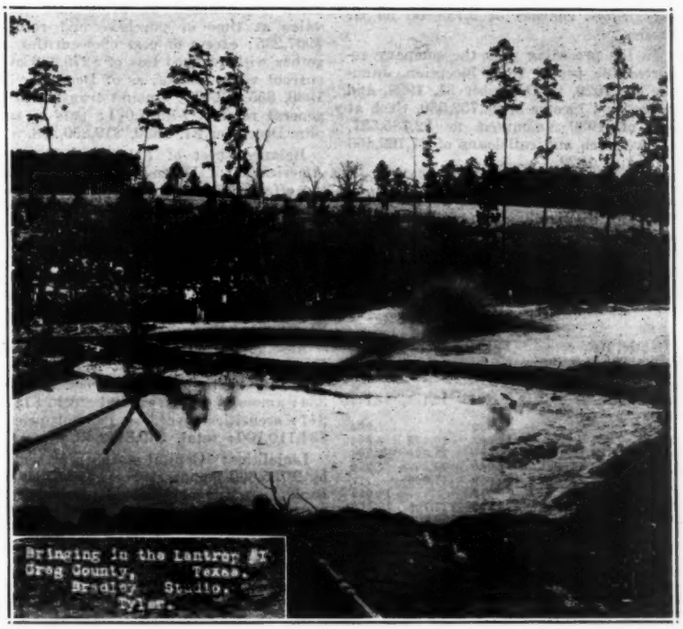


Picture of crowd which is continuously "milling" around the Gregg Hotel, Longview, Tex., which is only 6 miles from the Farrell-Arkansas Fuel Oil Co. and others' No. 1 Lathrop discovery. This town is one of the main headquarters for company men and independent operators.



Harry F. Sinclair and Charles F. Roeser at Gregg County discovery well, January 29, 1931.

Showing one side of street in Joinerville, Tex., near Joiner Pool.



Farrell-Arkansas Fuel Oil Co. and others' No. 1 Lathrop, Gregg County discovery coming in.

GREAT LAKES GASOLINE PIPE LINE TARIFFS

(Continued from Page 25)

shown in this tariff, when such switching charges are not absorbed by rail carriers.

Copies of Tariff

Copies of the detailed rates to all points included in the 23 groups and to points along the line are available in the offices of the Great Lakes Pipe Line Co. in the Administration Building at the Fairfax Airport, Kansas City, Kans. Office supplies and the greater portion of the company's personnel has been transferred from Ponca City to the new headquarters and pipe line deliveries of gasoline are expected to be made immediately.

DEATH OF CARL K. DRESSER

Carl K. Dresser of Bradford, Pa., and Tulsa died Saturday, January 31, in a Baltimore, Md., hospital after an illness of several weeks' duration.

Mr. Dresser was a son of the late S. R. Dresser, founder of the S. R. Dresser Manufacturing Co. of Bradford. He was born in Bradford and was educated in the public and in private schools and in the University of Princeton. Before leaving college he had entered business and was made president of the Malta and McConnellsville Gas Co. He operated in eastern oil fields with success and in 1919 came to Oklahoma and developed several good properties in the Osage Nation and later in Greenwood County, Kansas, and other areas, meanwhile organizing the Dresser Oil Co. and the Natural Resources Development Corp. and becoming secretary and treasurer of the Cumberland Torpedo Co.

He entered the silver ore mining business in 1929 in New Mexico and Colorado.

Mr. Dresser maintained offices and a residence in Tulsa and in Bradford. He is survived by Mrs. Dresser, who was Miss Gloria Jack, daughter of John Jack, deceased, well known Bradford oil man.

RESUME NORMAL OPERATIONS

NEW YORK, Feb. 2.—Mexican Petroleum Co. will make a number of small additions at its refinery at Savannah, Ga., and resume a six-day working schedule at that plant, according to an announcement from Savannah by H. T. Hulin, refinery manager.

The plant has recently been operating on a four-day week during repairs and alterations of its distillation apparatus.

Report of Petroleum Corporation Out

Shows Holdings of Common Stocks at December 31 Last Compared With April 30 When Its Shares Were Listed on Exchange

Petroleum Corp. of America states that the net asset value per share on December 31, 1930, was $13.81 on the stock outstanding, after deducting all liabilities and reserves. Securities owned are carried in balance sheet at current market prices of $34,110,700, comparing with an aggregate cost of $89,483,358, the shrinkage of $55,372,658 being written off paid-in surplus.

The report for the year ended December 31, 1930, shows net income from cash dividends and interest received of $4,923,124, after expenses, interest paid and ordinary taxes. This does not include a realized loss on securities of $279,837, which was charged to paid-in surplus. This income being largely in the form of dividends which are nontaxable, no provision for Federal tax liability is necessary. Stock consists of 2,735,600 no-par shares.

In the preceding year the company reported for period from inception, January 16, 1929, to December 31, 1929, and showed net income of $3,752,530. Cash at end of 1930 amounted to $2,785,537, against cash and call loans of $7,763,456 at end of 1929.

The holdings by Petroleum Corp. of America of common stocks at December 31, 1930, compared with April 30, 1930, when its shares were listed on the New York Stock Exchange, is shown in the following tabulation, with increases and decreases:

	Dec. 31, 1930	Apr. 30, 1930	Incr'se
Atlantic Ref. com..	14,500	.....	14,500
Columbia Oil & Gasoline	2,625	.....	2,625
Columbia Gas & Elec.	.....	13,125	*13,125
General Am. Tank Car	5,000	.....	5,000
Humble oil	13,500	10,000	3,500
Imperial Oil	13,500	10,000	3,500
Mid-Continent Pet.	82,600	77,600	5,000
Ohio Oil Co.	†90,000	45,000	.....
Phillips Pet.	10,657	.....	10,657
Prairie Oil & Gas..	582,800	572,700	10,100
Prairie Pipe Line..	555,600	564,900	*9,300
Shell Union Oil	20,000	20,000	.....
Sinclair Consol.	104,800	79,800	25,000
Std. Oil of Calif.	‡56,100	51,000	5,100
Std. Oil of Ind.	15,500	15,266	234
Std. Oil of N. J.	8,300	8,300	.....
Std. Oil of N. Y.	18,000	13,000	5,000
Union Oil of Calif.	‡20,196	12,751	7,445
United Corp.	19,687	.....	19,687
Vacuum Oil	44,400	36,800	7,600

*Decrease. †Representing 2-for-1 split-up. ‡Including stock dividend.

Income account for year 1930 compares as follows:

	1930	Jan. 16, '29, to Dec. 31, '29
Total income	$5,290,482	$4,301,503
Interest	89,765	159,499
Fees and exp. of registrars, etc.	54,969	124,548
State franchise tax, etc.	48,422	79,087
Operating expenses	174,202	185,839
Net income	$4,923,124	$3,752,530
Dividends	3,301,762	.....
Surplus	$1,621,462	.....

Paid-in surplus account follows: Balance December 31, 1929, $45,500,000; add: Credit arising from reduction of capital value of 2,735,600 shares of capital stock from $17 to $5 per share, $32,827,200; total, $78,327,200; deduct: Excess of cost over $17 per share capital value at 514,400 shares of capital stock repurchased at below net asset value at time of purchase and retired, $907,235; excess of cost of securities together with realized loss of $279,838 over current value thereof, as of December 31, 1930, $55,652,496; amount transferred to general reserve, $1,917,071; paid-in surplus December 31, 1930, $19,850,398.

Balance sheet of Petroleum Corp. of America as of December 31, 1930, (giving effect as of that date to the reduction of capital through retirement of 514,400 shares of capital stock reacquired and held in treasury; the reduction of the capital value of capital stock from $17 to $5 per share, and the application of surplus to reduce the book value of securities to current prices as of December 31, 1930) follows:

Assets: Cash, $2,785,537; dividends receivable and interest accrued, $60,828; syndicate participations at cost, $3,770,334; amounts due on capital stock, $117,241; securities owned at current prices, $34,110,700; total, $40,844,640.

Liabilities: Capital stock (represented by 2,735,600 no-par shares), $13,678,000; bank loan payable (paid January 2, 1931), $1,000,000; accrued expenses, $48,000; general reserves, $2,000,000; paid-in surplus, $19,850,398; undistributed income, $4,268,242; total, $40,844,640.

Atlantic Refining

Preliminary statement of Atlantic Refining Co. and subsidiaries for the year ended December 31, 1930, shows consolidated net profit of $2,742,000 after interest, depreciation, depletion, Federal taxes, etc., equivalent to $1.02 a share (par $25) on 2,692,854 average shares of common stock outstanding during the year and $1.01 a share on 2,696,642 common shares outstanding at the end of the year. This compares with net profit in 1929 of $17,332,417, equal, after deducting $700,000 dividends paid on 7 per cent preferred stock, now retired, to $6.79 a share on 2,448,019 average common shares outstanding during that year and $6.20 a share on 2,681,980 common shares outstanding at the end of that year.

Cumberland Pipe Line

Cumberland Pipe Line Co. has declared a quarterly dividend of 50 cents, payable March 16 to stock of record February 28. This places the stock on a $2 annual basis against $4 previously. Cumberland Pipe Line Co. for the year ended December 31, 1930, reports net income, including $49,598 profit and loss credit adjustment, of $81,516, after taxes and depreciation, equal to $2.72 a share (par $50) on 30,000 shares of capital stock. In the preceding year net income, including $29,423 profit and loss adjustments, amounted to $35,978, or $1.20 a share. Excluding these profit and loss adjustments, earnings in 1930 are equal to $1.06 a share, comparing with 22 cents a share in 1929.

Standard of Indiana

Directors of the Standard Oil Co. of Indiana have declared a dividend of 50 cents a share payable March 16 to stockholders of record February 16. In explanation of the reduction from the former rate of 62½ cents, Edward G. Seubert, president of the company, said that while the company more than earned its dividend in 1930, the present disturbed situation in the oil industry necessitated adoption of a highly conservative policy as to paying out earnings.

Standard of Kansas

Income account of the Standard Oil Co. of Kansas for year ending December 31, 1930, shows sales $8,767,610.55; cost of sales (raw materials), $7,212,008.37; gross profit from sales, $1,555,602.18; gross earned income, $1,940,363.07; operating costs and general expenses, $1,131,435.47; taxes, $82,303.31; net profit after depreciation and income tax, $380,148.04.

President A. S. Hopkins in his report says:

"The business depression has not, of course, left us untouched, and you will, therefore, probably not be surprised to learn that its effects are reflected in our statement. Lower prices and consequent inventory losses have reduced net earnings materially but our present inventories were taken, as our inventories always have been taken, at lowest price levels and we are, therefore, in position to immediately profit by any future price advances.

"A 25-mile extension has been made during the year to the company's trunk pipe line and our entire crude requirements now come to us through it at considerable saving as compared with the former arrangement.

"Many plans have been suggested and considered during the year for the expansion of our business by merger or consolidation with other corporations, and also by the purchase of producing properties, but time and conditions seemed not right and no such deals were made. We felt that the uncertain conditions everywhere present demanded unusual care and caution and so, while we did not make much money during 1930, we certainly did not lose any in new ventures as we would probably have done had we undertaken, during that somewhat chaotic year, any such expansion program.

"The company's position in cash and securities remain relatively strong and we are hopeful indeed of an early upturn in general business conditions. However, your board of directors deems it prudent at this time to reduce the first quarterly dividend of 1931 and has declared a dividend of 25 cents per share, payable March 16, 1931, to stockholders of record February 21, 1931."

Eureka Pipe

Report of Eureka Pipe Line Co. for the year ended December 31, 1930, shows profits from operations of $17,054 after taxes, depreciation, etc., but before profit and loss adjustments, equal to 34 cents a share on 50,000 shares of stock, comparing with 17,369 or 35 cents a share in 1929. After deducting profit and loss adjustments for the year, net income for 1930 was $10,676, equal to 21 cents a share, comparing with net loss of $33,155 in previous year.

Canfield Oil

Canfield Oil Co. has declared four regular quarterly dividends of $1.75 each on the common and preferred stocks, payable March 31, June 30, September 30 and December 31 to stock of record March 20, June 20, September 20 and December 20, respectively. At the annual meet-

(Continued on Page 118)

STANDARD OIL STOCKS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

1931 High	1931 Low	Week ended January 28 Sales	High	Low	Close	Stocks	Outstanding capital	Par value	Div. rate	Last paid	1928 High	1928 Low	1929 High	1929 Low	1930 High	1930 Low
1	¼	200	½	½	½	Atlantic Lobos	499,448	N.P.	....	5-28-30	..	..	..	..	1	¼
25	11¼	100	12⅞	12⅞	12⅞	Borne Scrymser	$1,000,000	$25	$18A	10-15-30	56½	44½	46½	25	25	11¼
69	28	100	45	45	45	Buckeye Pipe Line	$10,000,000	$50	$1Q	12-15-30	76	53	74½	55	69	39⅞
184⅞	100¼	100	110¼	110¼	110¼	Chesebrough Mfg.	$3,000,000	$25	$1Q	12-30-30	161	117	210	130	184⅞	104¼
65¾	20¼	50	26	25	26	Cumberland Pipe Line	$1,500,000	$50	50eQ	12-15-30	114	67	75¾	40	65¾	20¼
54¾	26	x50	28	28	28	Eureka Pipe Line	$5,000,000	$100	$1Q	2- 2-31	88	64⅛	70½	42	54¾	26
7	1½	700	2	1½	2	Galena Signal Oil	$16,000,000	$100	....	.....	13	4¼	6½	3	7	2½
119	57¼	600	62½	62	62½	Humble Oil & Refining	$74,103,300	$25	50cQ‡	1- 2-31	114¾	59½	128	74⅛	119	57¼
320	303	100	315	315	315	Illinois Pipe Line	$20,000,000	$100	$4.50	12-15-30	290½	176½	340½	260	320	303
30	15	500	17¾	17⅝	17⅝	Imperial Oil of Canada	(sh) 26,421,768	N.P.	12½cQ	12- 1-30	104	56¾	41	22	30	15
41	14½	300	19	19	19	Indiana Pipe Line	$3,000,000	$10	50cQ‡	11-15-30	91⅞	74⅜	41⅞	26	41	14½
24	11⅜	400	14¾	14⅝	14¾	International Petroleum	(sh) 14,247,088	N.P.	25cQ	12-15-30	55	35	30⅜	15	24	11⅜
22⅜	11½	100	13½	13½	13½	National Transit	$6,362,500	$12.50	25cQ	12-15-30	32⅜	19⅜	25⅛	10⅛	22⅜	11½
21⅜	10	100	13½	13½	13½	New York Transit	$1,000,000	$10	40cQ	1-15-31	75	38½	17½	10	21⅜	10⅛
54	26¼	100	26¼	26¼	26¼	Northern Pipe Line	$2,000,000	$50	$28A	1- 2-31	69	56½	63	41	54	26¼
32	12	100	13½	13½	13½	Penn Mex Fuel	$10,000,000	$25	$1	12-15-30	84	28	44½	20	32	12
33	4⅞	100	6	6	6	Solar Refining	$4,000,000	$25	....	12-20-29	..	..	50	29	33	4⅞
20⅞	8¾	100	13⅛	13⅛	13⅛	Southern Pipe Line	$1,000,000	$10	5cQ	12- 1-30	19	15	22½	13	20⅞	8¾
45⅞	16⅛	100	23¼	23¼	23¼	South Penn Oil	$30,000,000	$25	50cQ	12-31-30	71⅞	36¾	60¼	35⅛	45⅞	16⅛
64	32	100	33	33	33	Southwest Pennsylvania Pipe Lines	$1,750,000	$50	$1Q	1-10-29	102	70	70	60	64	32
59⅞	30	3,100	37⅝	36⅜	36⅝	Standard Oil of Indiana	$348,175,069	$25	62½cQ‡	12-15-30	95⅞	70⅞	63	45	59⅞	30
40½	18⅞	1,800	22⅝	22¼	22⅝	Standard Oil of Kentucky	$25,654,516	$10	40cQ	12-31-30	179¾	122¼	46⅞	29	40½	18⅝
48⅞	34⅝	100	35⅛	35⅛	35⅛	Standard Oil of Nebraska	$4,649,225	$25	62½cQ‡	12-31-30	54⅞	39⅞	50¼	40	48⅞	34⅝
108½	43¼	100	55	55	55	Standard Oil of Ohio	$14,000,000	$25	62½cQ	1- 2-31	134	71	129	60	108½	43¼
10	3½	600	3½	3½	3½	Swan-Finch Co.	$861,466	$25	43¾cQ	12- 1-30	23½	16	18	10	10	4
97⅛	45⅝	2,300	56⅞	56	56	Vacuum Oil Co.	$126,180,350	$25	$1Q	12-20-30	111	72	133¾	75	97⅛	45⅝

*Plus 50 cents extra. †Plus 10 cents extra. ‡Plus 25 cents extra. x Ex-dividend.

INDEPENDENT OILS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

1931 High	1931 Low	Week ended January 28 Sales	High	Low	Close	Stocks—		Outstanding capital	Par value	Div. rate	Last paid	1928 High	1928 Low	1929 High	1929 Low	1930 High	1930 Low
4½	½	400	⅞	¾	¾	American Maracaibo	(sh)	700,000	N.P.	....	.....	9½	3⅛	8⅝	1⅛	4½	½
21	13⅜	2,400	15	14⅞	14⅞	British American (coupons)		1,311,321	N.P.	20cQ	1- 2-31	55	32¾	62	7⅞	23	13⅜
2¾	½	200	⅝	⅝	⅝	Carib Syndicate		$131,250	25c	....	.....	4½	3⅞	4⅞	1	2¾	⅝
44¼	13⅛	15,800	18⅜	17½	17¾	Cities Service	(sh)	24,290,359	N.P.	30cA†	2- 1-31	90⅞	54	68⅛	20	44¼	13⅛
93⅞	78¼	100	83	83	83	Cities Service pfd.	(sh)	1,500,000	N.P.	50cM	2- 1-31	103¼	94½	98¾	84	93⅞	78¼
¾	⅛	100	1/16	¼	¼	Colombia Syndicate		$2,000,000	$1	....	.....	3¼	.76	2	½	¾	⅛
5⅞	2	100	2¾	2¾	2¾	Consolidated Royal		$5,000,000	$10	7½cQ	1-25-31	8⅞	6¼	11⅛	2½	5⅞	2
7⅝	3	100	3¼	3¼	3¼	Creole Petroleum	(sh)	5,977,873	N.P.	....	.....	17½	9½	11¾	5⅝	7⅝	3
1	½	1,600	½	½	½	Crown Central (new)		.....	....	....	.....	..	..	..	..	..	..
21¾	4⅛	100	4⅛	4⅛	4⅛	Darby Petroleum		1,019,392	N.P.	....	10-15-30	33½	3¼	26	6½	21¾	4¼
11	2	100	2⅞	2⅞	2⅞	Derby Oil & Refining	(sh)	500,000	N.P.	....	.....	2¼	1	11	2	11	2
60	30	100	32½	32	32	Derby Oil & Refining pfd.		48,500	N.P.	....	.....	21⅛	7½	44	20¾	60	30
166⅞	58½	3,300	69⅞	68⅜	69½	Gulf Oil Corp.	(sh)	4,504,921	$25	37½cQ	1- 1-31	165	101⅛	209	115	166⅞	58½
1¾	⅝	2,300	½	½	½	Intercontinental Petroleum		$5,682,000	$5	....	.....	3⅜	1	2⅞	⅜	1⅜	⅜
3	⅞	100	1	1	1	Kirby Petroleum	(sh)	750,000	N.P.	....	.....	3	1¼	3⅝	1¼	3	⅞
4¾	½	100	¾	¾	¾	Leonard Oil & Development		$50,000,000	$25	....	.....	9⅜	5⅛	6⅛	1	4⅜	½
29	4⅞	100	6½	6½	6½	Lion Oil & Refining	(sh)	250,000	N.P.	50cQ	10-27-30	43⅞	20	38⅞	18	29	4⅞
55⅞	19⅝	900	27¼	26	26	Lone Star Gas	(sh)	5,000,000	N.P.	25cQ	12-31-30	69⅛	48½	67⅞	28	55⅞	19⅝
½	1/16	300	⅛	⅛	⅛	Magdalena Syndicate	(sh)	850,000	$1	....	.....	1⅞	½	1¼	¼	½	⅛
16	3	100	4½	4	4	Margay Oil Corp.		160,000	N.P.	25cQ	7-10-30	48½	32	38½	14	16	3
7½	1¾	200	1⅝	1⅝	1⅝	Mexico-Ohio Oil Co.		500,000	N.P.	....	.....	8	2¾	6⅜	2¼	7½	1¾
¾	1/16	400	⅜	5/16	5/16	Mountain & Gulf		$4,000,000	$1	1½cQ	1-15-31	1¾	.76	1½	¼	¾	⅜
12⅛	3½	200	5⅜	5¼	5¼	Mountain Producers		$1,682,182	$10	40cQ	1- 2-31	28⅞	19½	22⅞	7	12⅛	3¾
3½	1⅛	200	1¼	1¼	1¼	New Bradford Oil		$1,095,291	$5	10cQ	1-15-31	5⅝	4¼	5	2½	3½	1⅛
7¼	2⅛	100	2½	2½	2½	New Mexico and Arizona		$1,000,000	$1	....	.....	11⅞	7⅛	9⅜	2¼	7¼	1½
11¼	1¾	1,000	2¾	2¾	2¾	North Central Texas	(sh)	400,000	N.P.	....	9- 2-30	14¼	8½	18½	6⅛	11¼	2⅛
2½	¼	100	¼	¼	¼	Pandem	(sh)	489,875	N.P.	....	.....	6	2⅛	3½	½	2½	¼
4⅜	⅞	500	1⅛	1⅛	1⅛	Pantapec Oil	(sh)	1,506,000	N.P.	....	.....	15⅝	8½	10½	1⅞	4⅜	⅞
10½	1½	100	2½	2½	2½	Red Bank Oil	(sh)	250,000	N.P.	....	.....	18	4⅞	16	9⅝	10⅛	1½
5⅜	⅝	1,700	1⅛	1	1⅛	Reiter-Foster	(sh)	388,584	N.P.	10cQ	12- 2-29	12⅞	4⅛	8½	1⅛	5⅜	1
8⅝	2	500	2½	2	2¼	Ryan Consolidated	(sh)	500,000	N.P.	....	.....	12	4⅛	11	3	8⅝	2
2½	½	100	1¼	1¼	1¼	Salt Creek Consolidated	(sh)	1,286,300	$10	10cQ	1- 2-31	7¼	5½	5⅞	1⅞	2½	½
15¼	5¼	100	6⅜	6⅜	6⅜	Salt Creek Producers	(sh)	1,496,859	$10	50cQ	2- 2-31	35	23⅛	25⅞	9	15¼	5¼
1	½	100	½	½	½	Savoy Oil		$750,000	$5	....	.....	3½	1	2½	1/8	1	½
4½	⅝	500	1¼	1¼	1¼	Venezuelan Petroleum	(sh)	755,090	$5	....	2-15-30	9¼	4¾	6½	1¾	4½	⅜
5	½	100	2	2	2	Woodley Petroleum		$500,000	$1	15cQ	3-31-29	8¼	4⅞	9½	2	5	½
2½	⅜	800	⅝	⅜	⅝	Y Oil & Gas		100,000	N.P.	....	.....	8⅜	2⅛	2⅞	½	2½	⅜

*Including one-half per cent monthly in stock. †Payable monthly and monthly stock dividend of one-half per cent. x Ex-dividend.

TRANSACTIONS IN OIL SHARES ON NEW YORK STOCK EXCHANGE

Quotations Compiled by Francis, Bro. & Co., Members of the New York Stock Exchange and Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

1931 High	1931 Low	Week ended January 28 Sales	High	Low	Close	Stocks—		Outstanding capital	Par value	Div. rate	Last paid	1928 High	1928 Low	1929 High	1929 Low	1930 High	1930 Low
31½	16½	200	19½	19½	19½	Amerada Corp.	(sh)	922,075	N.P.	50cQ	1-30-31	43⅞	27⅛	42⅝	17½	31½	16½
37	5⅛	600	8⅛	7¾	8	American Republics Corp.	(sh)	209,180	N.P.	....	.....	85	51⅛	64¾	12½	37	5⅛
51	26½	40	30	29½	30	Associated Oil		$57,260,300	$25	50cQ	12-31-30	53⅜	37½	47¼	34½	51	30
51⅜	16⅝	8,900	22	21⅜	22	Atlantic Refining		$66,763,775	$25	25cQ†	12-15-30	66⅜	50	77⅞	30	51⅜	16⅝
34	8⅝	1,800	12¼	12	12¼	Barnsdall Corp. A		$56,546,600	$25	50cQ	11- 6-30	54	20	49⅛	20	34	8⅝
30½	7¾	1,100	10¼	10	10	Continental Oil of Delaware	(sh)	4,741,554	N.P.	....	12-15-27	..	..	47⅞	18	30½	7¾
71½	22⅜	600	33¾	32⅞	33½	General Asphalt	(sh)	413,333	N.P.	75cQ	12-15-30	94⅞	68	94¾	42¼	71½	22⅜
116⅞	29¼	1,400	41¼	39	39	Houston Oil		$24,968,600	$100	....	10-17-30	167	79	109	26	116⅞	29¼
11¾	6⅝	900	9	8⅞	8⅞	Houston Oil (new)	(sh)	998,744	$25	....	.....	..	..	..	..	11¾	6⅝
28¾	3	500	4⅛	4	4⅛	Indian Refining		$12,564,070	$10	....	.....	39⅝	9	53	13⅛	17	2
12	3½	600	4⅛	4⅛	4⅛	Louisiana Oil Refining	(sh)	1,190,063	N.P.	....	.....	19¾	9¾	18	7	12	3½
10⅜	1¾	100	3	3	3	Maracaibo Oil	(sh)	330,000	N.P.	....	.....	25½	12½	18½	5⅛	10⅜	1⅜
37	9¾	7,200	14¾	13⅝	13¾	Mexican Seaboard	(sh)	1,244,383	N.P.	....	10- 1-24	72	45⅜	59⅜	8¼	37	9¾
33	11	500	14¾	14½	14½	Mid-Continent Petroleum	(sh)	1,857,912	N.P.	50cQ	11-15-30	44½	25⅛	39⅞	22⅛	32	11
32	16	1,400	18	17⅛	17⅛	Ohio Oil	(sh)	6,648,052	N.P.	50cQ	12-15-30	84	58½	79⅞	64¼	32	16
64¼	42	100	43	43	43	Pan American P. & T.		$50,084,700	$50	....	12-20-27	50⅞	38¼	69	40½	46½	42
67¼	30	300	35⅛	35⅛	35⅛	Pan American P. & T. "B"		$121,110,650	$50	....	12-20-27	58⅞	37⅜	69¼	40½	67¼	30
..	..	No sales.				Pan American Western "B"		400,000	N.P.	....	1- 30-27	28⅜	15½	18½	13⅝	..	..
12¾	1¾	300	2½	2⅜	2⅜	Panhandle P. & R.	(sh)	199,370	N.P.	....	.....	21¾	11½	15¼	3	12¾	1¾
80	47½	100	70	70	70	Panhandle P. & R. pfd.		$2,564,400	$100	....	7- 2-30	108	70	76	47½	80	47½
44¾	11½	29,800	13⅛	12⅜	12⅜	Phillips Petroleum	(sh)	2,593,075	N.P.	50cQ	1- 2-31	53⅞	35¼	47	24¼	44⅜	11½
2½	½	200	¾	⅝	⅝	Pierce Oil Corp.		$29,622,831	$25	....	.....	5¼	½	3⅜	1	2½	½
7⅛	1⅜	1,300	2⅝	2⅝	2⅝	Pierce Petroleum	(sh)	2,500,000	N.P.	10c	11-15-30	7	3½	5⅞	½	7⅛	1⅜
54	11¼	1,100	14	13⅝	13⅝	Prairie Oil & Gas		$60,848,000	$25	50cQ*	12-31-30	68	46	65⅜	40½	54	11¼
60	16⅝	2,400	18⅜	17⅞	18⅛	Prairie Pipe Line		$101,250,000	$25	75cQ†	12-31-30	280	172	65	45	60	16⅝
11⅞	1	200	4⅜	4⅜	4⅜	Producers & Refiners		$37,438,950	$50	....	9-15-23	29⅞	16	25⅞	4	11⅞	1
40	11½	20	14½	14½	14½	Producers & Refiners pfd.		$2,845,350	$50	....	5- 4-25	49⅝	41	46¾	25½	40	11½
27¼	7⅝	400	10½	10¼	10½	Pure Oil		$75,959,250	$25	....	9- 1-30	31⅝	19	30¾	20	27¼	7⅝
9¾	2¾	8,000	4⅞	4½	4½	Richfield Oil (new)		$52,410,875	N.P.	....	.....	56	23	49⅝	20	9¾	4⅛
25¾	5	200	6⅛	6⅛	6⅛	Rio Grande Oil	(sh)	1,236,270	N.P.	....	7-25-30	37½	32	42½	15	25¾	5
56½	36⅞	500	39⅝	38⅞	39¼	Royal Dutch, N. Y.	(sh)	611,303	....	$1.3404	1-30-31	64	44⅝	64	43⅛	56½	36⅞
48⅜	26	200	34	32	32	Shell Transport & Trading Co.		£23,985,000	£1	$0.966	7-28-30	47¾	41⅜	51½	40⅝	48⅜	26
25½	5¼	2,500	9½	9¼	9⅜	Shell Union Oil	(sh)	13,066,497	N.P.	....	6-30-30	39½	23¼	31⅜	19	25½	5¼
37	5⅝	800	10	8	9½	Simms Petroleum		$8,353,620	$10	....	9-15-30	27¼	18⅛	40⅛	15	37	5⅝
32	9¾	2,600	12⅛	11⅞	11⅞	Sinclair Consolidated	(sh)	5,500,000	N.P.	25cQ	1-15-31	46¾	17¾	45	21	32	9¾
112¼	86	100	99	99	99	Sinclair Consolidated pfd.		$16,025,250	$100	$2Q	11-15-30	110	102½	111	103	112¼	86
42	8½	600	8⅞	8⅝	8⅝	Skelly Oil		$27,441,250	$25	50cQ	12-15-30	42⅝	25	40½	28	42	10¼
75	42¼	2,200	47⅞	46⅞	47¼	Standard of California	(sh)	12,594,098	N.P.	62½cQ§	12-15-30	80	63	81⅞	51½	75	42¼
49	14⅜	300	17	16½	16½	Standard of Kansas		$8,000,000	$25	50cQ	12-15-30	37⅜	15	33⅜	18	49	14⅜
84⅞	43½	11,700	48	47⅛	47¼	Standard Oil of New Jersey		$634,999,200	$25	25cQ*	12-15-30	59⅜	37¾	83	49	84⅞	32½
40⅜	19¾	4,800	24⅛	23⅜	23½	Standard Oil of New York		$445,223,675	$25	40cQ	12-15-30	33¼	28⅜	48⅛	31¾	40⅜	19¾
70	39	200	40¼	40¼	40¼	Sun Oil	(sh)	1,416,869	N.P.	25cQ	12-15-30	77	31½	68⅜	55	70	39
9⅜	¾	300	1⅜	1⅜	1⅜	Superior Oil Corp.	(sh)	776,979	N.P.	....	12-20-30	..	..	24	5¼	9⅜	¾
60½	28¼	2,600	32⅜	31⅞	32⅜	The Texas Corporation		$246,204,900	$25	75cQ	1- 1-30	74⅜	50	71⅞	50	60½	28¼
14½	4	900	6⅛	6⅛	6⅛	Texas Pacific Coal & Oil Co.		$9,304,890	$10	2½%A‡	12-31-29	26⅝	12⅛	23⅞	9½	14½	4
31	12	200	12¾	12¾	12¾	Tide Water Oil	(sh)	2,191,759	N.P.	20cQ	12-31-30	41½	19⅝	40	14	31	13
94¾	68	200	78½	78½	78½	Tide Water pfd.	(sh)	19,947,000	N.P.	$1.50Q	11-15-30	100⅛	86	97½	85⅛	94⅞	71
17¾	5⅞	1,800	7¾	7⅜	7⅜	Tide Water Associated	(sh)	5,560,424	N.P.	30c8A	1- 2-31	25	14¾	23½	10	17¾	5⅞
89¾	53	300	62½	61	62½	Tide Water Associated pfd.		$73,284,500	....	$1.50Q	1- 2-31	..	..	90⅞	74⅛	89¾	55
50	20⅛	500	24	23½	24	Union Oil of California		$104,342,375	$25	50cQ	11-10-30	58	42⅜	57	42⅛	50	20⅛
38½	23	600	23⅛	23	23	Union Tank Car	(sh)	1,254,048	$100	40cQ	12- 1-30	128⅛	110	163¾	121⅞	38½	23
27	4½	1,600	5⅞	5⅝	5⅝	Warner-Quinlan	(sh)	632,948	N.P.	....	7- 1-30	44⅞	26	42⅞	15	27	4¼
21	6½	900	7	7	7	Wilcox Oil & Gas	(sh)	428,907	N.P.	25cQ	5-10-28	..	..	29¾	12⅞	21	6½

*Plus extra dividend of 25 cents. †Plus extra dividend of 50 cents. ‡Payable in stock. §Plus 2 per cent stock dividend. x Ex-dividend.
In comparing highs and lows for the several years in the three tables, it will be necessary to take into consideration cases where there have been splits in the stock.

ROCKY MOUNTAIN AREA

(Continued from Page 46)

are to the effect that it was not as great as stated in press dispatches.

Grand Teton Oil Co.'s No. 1 Blevins, SW SE, Section 33-5n-44, Teton County, which was shut down last November for rotary equipment, is expected to resume shortly. The rotary outfit is now on the ground, but weather conditions have been unfavorable for the resumption of operations. The hole is bottomed at 3,304 feet in the Aspen shale. It is planned to ream the hole to bottom and run a string of 8¼-inch to that depth and then change back to cable tools.

United Utilities Corp. is receiving supplies for a test well to be drilled on the Pickle Butte structure, near Caldwell.

Rocky Mountain Production

Average daily runs from fields week ending January 31:

WYOMING	
Salt Creek	25,820
Big Muddy	1,910
Grass Creek	2,110
Elk Basin	700
Dallas	380
Frannie	930
Hudson	240
Lovell	10
Teapot	20
Warm Springs	90
Rock River	2,010
Lance Creek	150
LaBarge	1,760
Poison Spider	250
Oregon Basin	2,900
Osage	1,100
Ferris	40
Byron	10
Lost Soldier	3,740
Simpson Ridge	90
Dutton Creek	140
Midway	60
Total Wyoming	44,460
MONTANA	
Cat Creek	1,110
Lake Basin	50
Kevin-Sunburst	4,470
Pondera	1,500
Border	500
Dry Creek	270
Total Montana	7,900
COLORADO	
Florence	620
Moffat	1,160
Fort Collins	1,170
Iles Dome	940
Rangley	50
Tow Creek	360
Boulder	....
Orchard	400
Total Colorado	4,700
NEW MEXICO	
Rattlesnake	1,200
Hogback	360
Table Mesa	70
Artesia	572
Cap Rock	555
Getty	102
Hobbs	29,820
Jal	1,046
Lea	2,212
Eunice	2,397
Texas Pacific area	253
Total New Mexico	38,587
Total Rocky Mountain	95,647
Total previous week	98,860
Difference	3,213

HEARINGS BY SENATE COMMERCE COMMITTEE

(Continued from Page 99)

for the handling of that oil in that field. These new pipe lines served the refineries previously served by the Prairie. The Prairie had storage for 60,000,000 bbls. of oil and there was only one thing for them to do and that was to serve notice on producers from small wells that they could no longer take their oil. As a result 30,000 or 40,000 small wells lost their output for their oil and since December 31, 1930, the Prairie has been unable to take that oil.

"Since the Standard cut out the Prairie Oil & Gas Co. the stock of the company, which sold for $66 a share, now sells for $11. The Prairie company has no refineries and no service stations. It can only hope to go into the refining and distributing of oil in order to get rid of its large surplus of oil. It is forced to become a competitor in the refining of oil and must build or purchase refineries and it must have filling stations.

"I think I am safe in saying that this investigation discloses the fact that at no time in the history of the oil business has the Standard, the Gulf and Royal Dutch-Shell made as much money as they are now making. They have taken up distressed companies at their own price."

Senator Capper: "That means that it makes no difference whether they produce oil at a profit or not. They make money just the same."

Major Operation Threatened

Senator Vandenburg: "In the last analysis we all agree that there must be a major operation performed on the oil business. We all agree to that."

Senator Capper: "Senator Thomas has shown what has taken place by presenting this oil picture."

Senator Thomas: "Whereas a year ago large oil companies were neutral on this legislation, we are considering today without exception they are supporting the Capper proposal. I refer to the large independent companies such as the Prairie Oil & Gas Co. which is a $100,000,000 concern."

Senator Vandenburg later explained that he believed the Senate would pass promptly legislation giving authority to some such body as the Federal Trade Commission to order a proration of imports whenever domestic proration is resorted to, not confining such action to the next three years. This would apply to any industry and he believed there would be no objection to it in Congress.

Senator Capper spoke at some length on his bill for an embargo on oil imports.

Capper Defends Bill

Senator Capper: "I do not contend that the enactment of this law will save the petroleum indusry of the United States but I do believe its enactment will keep the industry alive. It will give us an opportunity to work out a long-time problem and it will return to employment thousands of workmen. After that measure is passed we will still have the problem of monopoly by a few large oil companies and we will have to obtain tariff protection for that industry just as we have tariff protection for other industries. But we will have to give the industry life while we decide upon the relief that will serve best to firmly re-establish the oil industry.

"It may be that this will point to government control and regulation of pipe line carriers just as we control the railroads and will have to look after refining and wholesale and retail distribution. We will have to go along several roads. I am thoroughly convinced that both crude and refined products should have adequate protection but I am still aware that a tariff on petroleum during this session of Congress probably is impossible. It is not a question of what ought to be done for the oil industry at this time. It is a question of what can be done to keep the little industry alive while we work out a plan and determine what is best to do. This industry is facing poverty and ruin for hundreds of thousands of people in the southwest and in other sections of the country. This has brought me to my own State of Kansas.

Senator Capper referred to conditions of the oil-producing industry in his State and to the necessity of keeping small wells pumping. He referred to the Royal Dutch-Shell bringing oil in from foreign countries at prices which could not be met by the small producers. He said the small producer had prorated voluntarily and without that co-operation proration could not have been successful. That was proven by the fact that in Oklahoma in one field the proration has been 1½ per cent of normal production and in that State the oil industry was so influential that such a condition could not have been brought about without its voluntary acquiescence.

"I am informed," said Senator Thomas, "that after the small companies had agreed to proration of the American production the equivalent of 120,000,000 bbls. of crude oil were thrown on the domestic market in the form of foreign imported oil breaking down the market entirely. It is contended by Wirt Franklin and I believe there has been no overproduction of oil for our domestic needs and there would be no suggestion of overproduction if this foreign oil had not been brought into the market."

Senator Thomas gave figures indicating that the price of gasoline does not follow the price of crude oil which he said proved consumers are not getting the benefit of the importation of cheap foreign oil.

Senator Thomas: "The only beneficiaries of the low priced oil are the four companies, Royal Dutch-Shell, Gulf and the Standard companies. Continue the present system for a few years and the independent companies will have to go out of business. If the independent companies go out of business they must cancel their leases and they are beginning to do that today. Then the oil resources of this country will be gobbled up by the big companies that possess transportation, refining and wholesale and retail distribution facilities. They will have a monopoly of these resources and the public will be at their mercy.

"We cannot solve this problem in Congress in two years and unless the independent producers are protected from this cheap foreign oil before we arrive at the real problem there will be no problem to solve. The Dutch-Shell and the other big companies will have solved that problem by monopolizing the oil industry. Unrestricted importation is the greatest enemy of the oil industry today."

Will Embargo Work?

Senator Vandenburg: "I am interested in learning whether this scheme is going to work. I have a letter from a large operator in Michigan. Michigan consumes 50,000 bbls. of oil a day. This including gasoline and other refined products, my correspondent says. He adds that he believes oil production in Michigan can be increased from 50,000 to 75,000 bbls. per day which will provide amply for that State. If the domestic producers are going to do that as a result of your embargo then all possible advantage of the embargo will go."

Senator Capper: "I do not believe this man can accomplish what he thinks can be done. Michigan consumption in proportion to population is the largest of any state in the Union but production will not work out the way your correspondent believes."

Senator Vandenburg: "This correspondent is against your law. If domestic producers are going to take advantage of your embargo to increase their production there will be the same glut from which we are now suffering."

Senator Capper: "There will not be a glut if we keep out this foreign oil. Certainly there will be a better chance for this man to increase his production in Michigan if we relieve him from the Venezuelan competition."

Senator Vandenburg: "How are you going to get away with price control even if this foreign oil is eliminated. Are you not still entirely at the mercy of these big companies?"

Senator Capper: "I do not believe they will be able to sell this oil as cheaply as the Venezuelan oil is produced."

Senator Vandenburg: "But you say they can take their own oil for nothing and still make a profit."

Senator Capper: "But they have not the club of imports."

Senator Vandenburg: "Would you favor a general law which would put authority somewhere to require a proration of imports in any commodity when there is an equivalent proration of domestic production?"

Compared to Copper

Senator Capper: "I would be in favor of the Government giving protection to domestic industry if it should develop, as in this industry, that foreign production was threatening the American producer and practically putting him out of the market and that was being done by interests also attempting to control the local market and actually had control of manufacturing and distribution and of all other factors entering into the situation. But I cannot conceive a situation arising as acute as that which is now threatening the oil industry. I cannot conceive that copper will ever be in as critical a condition as the oil industry is today."

Senator Vandenburg: "Copper is in the same condition today because big copper interests have gone abroad and are now producing foreign copper at lower prices than it can be produced here."

Senator Williamson: "Is it not true that copper if left in the ground will not deteriorate but the reverse is true in the case of oil?"

Senator Vandenburg: "That last statement is inaccurate because copper in American mines worked at great depths requires that the mines must be kept free from flooding precisely as is the case with oil."

Senator-elect Gore remarked that if this legislation should result in a vast increase in production it would at least give labor to 100,000 nem now out of work. He called attention to the fact that leaseholds require oil men to drill whether they want to drill or not and whether they can make any profit or not. They are not the masters of their own business.

"The manufacturer or the coal company can curtail his business even though the coal miner has to drain his property to protect it. The copper man may have to drain his mine but he does not have to produce copper to protect his claim. The oil men today have cut their production down 870,000 bbls. and I think they are doing their best but that does not protect them from the importation of oil."

Senator Thomas exhibited photographs showing conditions of destitution especially about Oklahoma City which caused Senator Vandenburg to remark that if the present proration allowed them only five days in the year for work in that oil field the embargo shutting 10 per cent of the oil from foreign countries would give only 10 per cent more time to work and would not do them much good.

Senator Gore: "I do not think the 10 per cent is the cause of their anxiety. This importation of oil is the threat and the club that destroys."

The committee took a recess until Monday when they will hear representatives of the American Gas Association in opposition to either an embargo or a tariff on petroleum.

Secretary Wilbur's Statement

Dr. Ray Lyman Wilbur, Secretary of the Interior and chairman of the Federal Oil Conservation Board, had been written by Chairman Johnson asking his views on the pending oil bills and the reply of the Secretary was received and made a part of the record as follows:

"Before me is the request for report on S. J. Res. 238, a bill imposing tariff on petroleum importations, and S. 5,818, a bill imposing an embargo on petroleum importations.

"This department is not in the position to deal with tariff questions and I suggest that they be taken up with the advisory tariff agencies of the Government.

"There is general agreement that the notable efforts of the oil producers of the United States, and federal and state officials concerned to hold down output, have this past year prevented a disaster. By keeping the 1930 production fully 10 per cent below that of 1929, the oil industry attained more of a balance between the refineries for crude oil and the supply produced at the wells of the country. Indeed, for the first time since 1926, there was a net decrease in stocks of crude oil.

"The program of domestic curtailment of production necessarily curtailed the oil producers' income and naturally in seeking relief, the producers have looked to a similar curtailment of imports from foreign oil fields. If proration is the logical method of control of supply, it would seem to be logical to apply it to imports. Briefly stated, since 1923, when exports and imports of all oils were practically equal in quantity the exports of crude oil and especially of refinery products have largely exceeded imports in quantity, and greatly exceeded them in value. Indeed, exports of petroleum products have made up the third largest item in the foreign trade of the United States. What the effect of restrictions would be upon the employment of labor in connection with oil refining and the effect upon employment in other industries, is again beyond the knowledge of this department.

"It seems to me that the evident need is proration of imports under the guidance of some fact-finding body, such as the Federal Trade Commission."

LA.-ARK. FIELDS

(Continued from Page 51)

northeastern Concordia Parish and Glassell has begun drilling No. 1 Alexander in Section 47-8-9 for it. The block and well is across the Mississippi River from a block in Adams County, Mississippi, on which Glassell recently drilled to 2,317 feet. His No. 1 Pittsfield Plantation, SW SW, Section 41-8-10, Concordia Parish, had 3,000,000 feet of gas with salt water at 1,491 feet but was abandoned as a dry hole at 2,434 feet. Louisiana Gas & Fuel Co.'s deep test in Homer, No. 10 Langston, SW SW, Section 19-21-7, had 20 feet of sand at 3,243-63 feet, ran drill stem test and got 20 fourbles of salt water with a show of oil in five minutes and is drilling at 3,296 feet. C. D. Neff has assembled another block of 1,000 acres centering on Sections 5 and 6-12-16, 6 miles north of Logansport, in the southwest corner of DeSoto Parish. It adjoins another block of his on the south and was secured for a 3,000-foot test to be begun by February 15. His No. 1 Ramsey, Section 33-13-16, on this other block, is drilling at 1,500 feet. J. W. Cooper is arranging for a drill stem test of a show of gas in 3 feet of sandy shale in No. 1 Cooper, NW SE, Section 35-11-10, Natchitoches Parish, total depth 2,832 feet.

Union County Wildcats

Two wildcats about half way between Smackover and Lisbon production in Union County, Arkansas, were completed as small producers by H. L. Hunt. No. 5 Swilly, NE NE, Section 28-16-16, pumped 75 bbls., 15 per cent water, from 2,689 feet, and No. 6 Swilly, SE SE, Section 21-16-16, pumped 80 bbls., 50 per cent water, from 2,711 feet, corresponding to the Graves sand in Smackover.

These were Arkansas' contribution to the news aside from the Lafayette and Little River County wells. In Miller County, Bullock Oil Co. is approaching the depth at which C. V. Lenz completed his discovery well, coring No. 1 Hervey, Section 33-14-26, 6 miles north of the discovery, at 2,815 feet. Total depth of the discovery was given as 2,847 feet. E. & F. Oil Co.'s No. 1 Beck, Section 36-15-26, 2 miles south of the discovery, is in litigation and shut down at 2,968 feet. At 2,814 feet it made 125 bbls. fluid, 10 per cent oil. Lenz is drilling No. 2 Johnson, Section 24-15-26, at 4,490 feet, and J. D. McRae has derrick up for No. 1 Smith, SE SE, Section 28-15-26. In Scott County, Waldron Oil & Gas Co. began drilling No. 1 J. G. White, SW NW, Section 17-3-29, January 11 and is drilling at 775 feet after passing up a small amount of gas at 400-03 feet. Location is on the outskirts of the town of Waldron, approximately 30 miles south of Fort Smith gas territory.

EAST TEXAS

East Texas, in spite of the excitement in Zwolle, Caddo and Arkansas, continues to monopolize the attention of operators here. The border counties, from the Sabine River to the Oklahoma line, but more particularly Panola, Marion, Harrison, Cass and Bowie, are swarming with lease and royalty traders and things are shaping themselves for an intensive drilling campaign covering a wide expanse of territory. S. D. Hunter, who took over the Shell Rock test on the Dougherty farm in the W. B. Burris Survey of western Harrison County, has abandoned that well at 3,568 feet as a junked hole, skidded 200 feet southeast and has rig up for No. 2, which is to be a deep test for the 3,600-foot sand developing in Gregg County. Corona Petroleum Co. has derrick up for No. 1 Bohler, SW cor., S. F. Sparks Survey, also in the western part of the county, and in Panola J. B. Moseley has taken 3,500 acres centering on the Isabella Hanks Survey, 5 miles south of Carthage, for a deep test to be begun by February 15. W. L. Jeffus and L. P. Lee of Holdenville, Okla., have about completed a 6,000-acre block in the Cyrena McGeary, G. Walton, William Rich and William Fisher Surveys and are to begin drilling before May 16.

MISSISSIPPI

Two wells, one a producer and the other abandoned, without trying to make a well, were written off the Jackson, Miss., report. Love Petroleum Co.'s No. 1 Homestead, SE NW, Section 34-6-1e, Hinds County, made 5,000,000 feet of gas in 5 feet of chalk, total depth 2,455 feet; No. 1 Moore, NW NW, Section 28-6-2e, Rankin County, was abandoned at 900 feet. Two wildcats, idle for several months, also were dropped; Hightower & Golson's No. 1 Flemming, Section 20-13-3, Chickasaw County, dry at 1,700 feet, and Associated Oil Co.'s No. 1 School, SW SE, Section 16-15-19, Monroe County, at 32 feet. United Production Co. ran drill stem test on No. 1 McIntosh, SW NE, Section 5-8-16, Covington County, at 2,555-2,714 feet and got 24 fourbles of water in seven minutes and is drilling at 2,803 feet. Mississippi Gulf Oil Co.'s No. 1 Pope, NW NE, Section 35-8-16, is shut down for orders at contract depth of 3,000 feet. Gulf Refining Co. topped the chalk at 2,485 feet on No. 1 McLaurin, NW NE, Section 30-6-2, Hinds County, on the north side of the field, and has 415 feet of water in the hole it is unable to lower, total depth 2,515 feet. Ganzel and others' No. 1 Stallings, NE NE, Section 25-5-1e, Rankin County, 2 miles south of production, topped chalk at 2,628 feet, tested 16 fourbles of water at 2,628-49 feet and is drilling at 2,675 feet.

OIL CONSUMPTION AND ANTIKNOCK RATINGS

(Continued from Page 26)

Pennsylvania and Coastal oils to the three fuels (a), (b) and (c), using in each case the same oil in the crankcase. The crankcase oil consumption of the engine was one-half per cent of the fuel consumption.

TABLE 1—EFFECT OF ADDING PENNSYLVANIA AND COASTAL OILS TO THE TEST FUELS
Octane Numbers

Fuel	Oil in fuel, %	Penn. oil 110° F.	Penn. oil 185° F.	Coastal oil 110° F.	Coastal oil 185° F.
(a)	0	67.6	67.6	67.6	67.5
(b)	0	67.6	67.6	67.6	67.4
(c)	0	67.6	67.3	67.6	66.9
(a)	4	66.3	66.3	66.9	66.5
(b)	4	65.9	66.5	66.5	65.9
(c)	4	65.6	66.3	66.9	66.3
(a)	8	65.3	63.2	66.5	64.4
(b)	8	64.1	63.2	65.9	64.1
(c)	8	64.7	62.9	64.7	64.1

The Pennsylvania and Coastal oils added to the fuels lowered the octane number in all cases at both oil temperatures and had slightly more effect on fuels (b) and (c). Apparently the Pennsylvania oil had slightly more deleterious action than the Coastal oil. A small part of the differences shown under the two oil temperatures might be ascribed to changes in the engine oil consumption due to changes in viscosity of the crankcase oil at the two test temperatures.

The oil consumption was increased to 2 per cent of the fuel consumption by fitting a loose piston and increasing the volume of oil in the crankcase. Pennsylvania oil was used and the temperature held at 110° F. Table 2 shows a comparison between the octane numbers obtained on the three fuels with different oil consumptions.

TABLE 2—CHANGE IN OCTANE NUMBER WITH DIFFERENT OIL CONSUMPTIONS

Fuels	Oil consumption in terms of fuel consumption, %	Condition of exhaust	Octane number
(a)	½	Clear	67.6
(b)	½	Clear	67.6
(c)	½	Clear	67.6
(a)	2	Smoky	66.9
(b)	2	Smoky	66.9
(c)	2	Smoky	66.9

The engine was noticeably erratic with high oil consumption. The combustion space was cleaned previous to all check runs but this failed to improve engine irregularities. The increase in oil consumption decreased the octane number of all three fuels by 0.7.

Probably a wider variation between different fuels in these tests would have been found if the fuels had contained larger quantities of tetraethyl lead or benzol. However, the results are based on fair averages of ethyl fluid or benzol marketed in gasolines at present and should be representative of the variations that might be expected in the general run of testing.

Effect of Higher Temperatures

To estimate truly the effect of the higher temperature of the oil on the different fuels knowing the effect of the higher temperature on the secondary reference standards is necessary. These consisted of: (1) Straightrun California; (2) 17 per cent of straightrun Colombia plus 83 per cent of straightrun Oklahoma City.

These two gasolines with varying quantities of tetraethyl lead had previously been rated in terms of octane numbers under standard test conditions and 110° F. coil temperature.

The effect of temperature changes on these secondary standards and on two fuels containing larger quantities of tetraethyl lead or benzol than used in previous tests is shown in Table 3. These fuels were rated directly in terms of pure isooctane and normal heptane. The oil consumption of the engine for this test was one-half per cent of the fuel consumption.

TABLE 3—EFFECT OF OIL TEMPERATURE CHANGES IN OCTANE NUMBER

Fuel—	Octane No. Oil temp., 110° F.	Octane No. Oil temp., 185° F.
Secondary reference—Standard 1 + 1.9 cc. of tetraethyl lead	67.6	67.6
Secondary reference—Standard 2	67.6	67.5
50% of benzol + 50% of Burbank	77.5	77.0
Straightrun Burbank + 4.8 cc. of tetraethyl lead	77.2	77.1

The change in oil temperature affected the relative ratings of the benzol blend 0.5 of an octane number. The higher oil temperatures increased the degree of knock intensity for all three fuels and this was rectified by a slight change in throttle opening. The secondary reference standards gave practically the same results as the actual octane-heptane mixtures.

As a matter of interest the California secondary standard plus various additions of tetraethyl lead when tested directly against octane-heptane mixtures at 212° and 300° F. cooling medium temperatures gave the same octane number at both temperatures. The Colombia-Oklahoma City mixture with small quantities of tetraethyl lead differed in octane number at the two temperatures but gradually came together with higher concentrations of tetraethyl lead.

That the effect of oil consumption and oil temperature on the ratings of different fuels might be considerably greater if other engine conditions were used, such as higher cylinder cooling medium temperature and higher induction temperature, is, of course, very conceivable. Some of the differences shown by these tests are within the range of experimental error over routine tests, ±1.0 octane number, but the figures shown are the averages of several tests in which the operating conditions were carefully controlled.

Conclusions

The following conclusions are drawn:

1. Errors due to different rates of oil consumption of test engines are approximately one octane number in testing commercial fuels.

2. The error due to variation of oil temperature may be as much as one octane number.

3. The two different mineral oils used made no difference to conclusions (1) and (2).

The usefulness of a universal secondary standard based on the primary standard mixtures of iso-octane and normal heptane is also shown if concordant results are to be obtained. The universal use of such a secondary standard would make many engine variations have less significance in relative ratings.

All knock-testing engines should be designed and run with the oil consumption at the minimum for safety and good operation. This improves the degree of accuracy of the results, decreases the carbon formed in the combustion space and results in steadier running of the engine. The oil temperature should be maintained constant and kept as low as possible consistent with good lubrication.

EAST CENTRAL TEXAS

(Continued from Page 49)

1,788 bbls. in 18 hours, open and choked, total depth 3,587 feet.

Anderson County

Frost Oil Co.'s No. 1 Batting, dry and abandoned, total depth 3,835 feet.

Henderson County

W. B. Ashburn and others' No. 1 Barry, dry and abandoned, total depth 3,993 feet.

Rusk County

H. L. Hunt's No. 1 Ashby, oil sand 3,517-33-60-65 feet, initial production 506 bbls. through casing and tubing, 336 bbls. through tubing in 15 hours, total depth 3,575 feet. C. C. Stone's No. 1 McCullough, abandoned location. C. C. Stone's No. 2 McCullough, abandoned location.

Van Zandt County

Roy Jenkin's No. 1 Davis, total depth 3,031 feet, pumps 8 bbls. every two days. L. R. Barton & Co.'s No. 1 B. F. Wamble, abandoned location. Hart Petroleum Co.'s No. 1 M. L. Cox, dry and abandoned, total depth 200 feet. Howard & Dowley's No. 1 W. B. Elliott, abandoned location. Pure Oil Co.'s No. 3 R. A. Howell, initial production 120 bbls., total depth 2,959 feet. Same company's No. 3 R. H. Peters, initial production 60 bbls., total depth 2,957 feet.

East Central Texas Production

Daily average production of the pools in the East Central Texas area for the week ending January 31 follows:

Boggy Creek	2,880
Cedar Creek	45
Currie	310
Hill County	30
Mexia	3,878
Minerva	430
Nigger Creek	170
Powell	5,086
Richland	115
Rusk County	4,666
Thrall	35
Van	26,042
Wortham	610
Total	44,347
Week ending January 24	45,243
Decrease	896

ACCIDENT PREVENTION COMMITTEE APPOINTED

Appointment of George F. Prussing, Union Oil Co. of California, Los Angeles, Calif., as chairman of the American Petroleum Institute's Division of Production 1931 Committee on Accident Prevention in Oil Fields, has been announced by Robert R. Penn, Penn Oil Co., Dallas, Tex., chairman of the divisional general committee. H. N. Blakeslee, American Petroleum Institute, Dallas, Tex., is secretary of the committee.

The members follow: C. P. Anderson, Richfield Oil Co. of California, Los Angeles; H. W. Boggess, Sinclair Oil & Gas Co., Tulsa; H. E. Dischinger, Shell Petroleum Corp., St. Louis, Mo.; R. E. Donovan, Standard Oil Co. of California, San Francisco; John Hammerman, Jr., Gulf Production Co., Houston, Tex.; C. L. Hightower, Texas Pacific Coal & Oil Co., Thurber, Tex.; H. W. Jackson, Kendall Refining Co., Bradford, Pa.; J. L. Manes, Twin State Oil Co., Tulsa; R. B. Roaper, Humble Oil & Refining Co., Houston, Tex.; T. N. Shaw, Midwest Refining Co., Casper, Wyo.; C. W. Smith, Standard Oil Co. of Indiana, Chicago; J. P. Sutton, Ohio Oil Co., Findlay, Ohio; D. J. Wallace, director of safety, Mid-Continent Oil and Gas Association, Tulsa, and R. B. Walter, Indian Territory Illuminating Oil Co., Oklahoma City.

ACQUIRE GERMAN FIELD

Sydney H. Keoughan of Denver and Hope Engineering Co. of New York and Mount Vernon, Ohio, are reported to have acquired controlling interest in North European Oil Co. with 1,600,000 acres leased in the provinces of Oldenburg, Brunswick and Mecklenburg. Mr. Keoughan succeeds Count Dru of England as president of the company, who becomes chairman of the board of directors. Mr. Keoughan and his associates said they were operating independently and were not linked with any other oil concern.

Oil Industry to Resist Pipe Line Bill

Institute Contrasts Taxation and Investment of Public in Rails and in Roads and Cars. Other Industries to Assist

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

NEW YORK, Feb. 2.—A determined effort will be made by the petroleum industry to combat the propaganda by railroad executives for the amendment of the Interstate Commerce Act to force the segregation of oil company pipe line properties, the American Petroleum Institute this week naming a committee of 12 of the leading oil executives in the United States to represent the industry in its fight against the proposals recently put forth by the Association of Railway Executives.

Members of the committee are: Henry M. Dawes, president, Pure Oil Co.; Henry L. Doherty, president, H. L. Doherty & Co.; R. C. Holmes, president, The Texas Company; D. J. Moran, president, Continental Oil Co.; J. Howard Pew, president, Sun Oil Co.; Frank Phillips, president, Phillips Petroleum Co.; E. B. Reeser, president, Barnsdall Corp.; E. G. Seubert, president, Standard Oil Co. of Indiana; W. G. Skelly, president of Skelly Oil Co.; L. P. St. Clair, president Union Oil Co. of California; and W. C. Teagle, president, Standard Oil Co. (New Jersey). F. A. Leovy of the Gulf Companies is the twelfth member and chairman of the committee.

Announcing the appointment of this committee, W. R. Boyd, Jr., executive vice president of the Institute, declared that the oil industry is prepared to vigorously combat the railway executives' proposals which he described as "nothing more or less than an effort to strangle by regulation the transportation of petroleum products and natural gas by pipe lines." While the petroleum industry is and has always been in sympathy with every "properly devised" plan for increasing railroad earnings to maintain railways as efficient transportation agencies, "it cannot agree that the carriers are entitled to destroy other means of transportation merely because they render competitively the service at lower cost," he said.

Would Increase Competition

Mr. Boyd's statement continues: "Likely the carriers would find pipe line competition increased rather than diminished if they were successful in obtaining their proposed legislation to prohibit an oil company from owning and operating pipe lines. At present, oil company pipe lines are mere incidents of the company's business; they are constructed and operated merely as facilities for plants and not primarily as transportation systems for hire. The pipe lines, if separated from company ownership, could not go to the railroads because they would be forbidden by law to operate them. They would have to be operated as independent transportation systems, competing actively with railroads for the crude oil and gasoline business, and the differential in rates would be so enormously in favor of the pipe lines that nothing the railroads could do would equalize the freight rate charge in their favor.

"Pipe line transportation is a legitimate service and a natural economic development. The public is entitled to the best form of transportation at the lowest reasonable cost, and the pipe line gives just exactly that for the transportation of certain petroleum products and natural gas and the railroads have no right to complain. To infer that it might be possible to compel abandonment of pipe lines, and in doing so prohibit the transportation of natural gas which the railroads cannot carry, and to force the movement of oil products entirely by tank car is just as logical as to suggest legislation prohibiting automobiles and motor trucks from carrying passengers and freight which, but for this newer means of transportation, might move less conveniently and at higher cost by rail.

"The oil industry will wage a determined fight against legislation, allegedly sponsored by the railroads, to strangle the automotive industry through excessive taxation. Public interest demands the right to choose that form of transportation best adapted to social and economic needs, and railroad efforts to strangle motor vehicle competition through legislation designed to increase taxes and impose further restrictions it seems to be certain will be fought by numerous industries and their trade associations.

"Those engaged in the petroleum industry are making preparations to follow the lead of such organizations as the American Automobile Association, National Automobile Chamber of Commerce, National Association of Motor Bus Operators, Rubber Manufacturers Association and the National Industrial Traffic League who are vigorously opposing the efforts of the railroads further to burden with taxation and promiscuous legislation the owners and operators of motor cars, buses and trucks.

"Forty-four state legislatures are either in session or about to convene. It appears from reports reaching the American Petroleum Institute that an organized campaign is being conducted to disseminate propaganda suggesting increases in gasoline taxes or license fees and the imposition of needless regulations on the ownership and operation of motor vehicle. It is understood that already an aggregate of more than 1,250 bills to tax or regulate in one form or another the fuel or the vehicle of the motor car and truck owner have been introduced in state legislatures.

Tax Burdens Contrasted

"The aggregate tax burdens of the motor car owner in 1930 climbed beyond the $1,000,000,000 mark. Substantially, it was divided as follows: Gasoline taxes, $535,000,000; license fees, $375,000,000; municipal taxes, $20,000,000; and personal property taxes, $130,000,000. This makes a total of $1,050,000,000, an estimate that probably is too conservative. Except for a comparatively small, but rapidly growing, percentage of diversion of gasoline tax income here and there for such purposes as schools, fish hatcheries, oyster conservation, sea walls, construction of state-owned buildings, etc., this enormous tax revenue is used largely for the construction and maintenance of highways—the rights of way for motor vehicles.

"Comparisons are informative. In 1930, the total of all taxes estimated by the Railway Age to have been paid by all steam railroads amounted to $356,000,000, or an average of 6.6 cents out of each railroad revenue dollar. The motor vehicle owners paid $1,060,000,000, or nearly four times the taxes paid by all the railroads. Out of every dollar expended by the motor vehicle owner for gasoline alone, 25 cents went into gasoline tax revenues of the states."

"The railroads have found their revenues and earnings diminished. This is unfortunate, but it is true of every other industry, whether due to depression or competition. Yet a part of the railroad program apparently is to strangle and stifle other forms of competitive transportation and, in the case of motor vehicles, to 'equalize competition' by increasing taxation and restrict legislation to the point where millions of dollars will be added to the tax burden they already bear and to the cost of highway transportation.

"The taxpayers have invested $15,000,000,000 in highways and an even larger sum in motor vehicular equipment for no purpose other than to use these highways and this equipment as a means of transportation. The investment is so great and so nearly comparable to that of the railroads themselves that legitimately it raises the question—shall public interest in the economies and convenience and flexibility of a new method of transportation be sacrificed in the sole interest of an older, but less convenient and more costly system? It seems wholly illogical that one form of transportation can or should hope to find favor with the nearly 30,000,000 owners of motor vehicles by demanding that they submit pleasantly to tax extortions and regulations in order that this one form of transportation may hold or regain business it cannot otherwise obtain or regain?

"Motor trucks constitute 12 per cent of the motor vehicles in use. They belong chiefly to industrial interests and to farmers. They now pay roundly one-fourth of the total motor vehicle tax bill. So-called interstate common carrier trucks pay four times as much tax as the privately owned trucks. Common carrier buses pay an average tax of $575 per annum. Every motor car owner pays his share now, and there is no justification for 'killing the goose that lays the golden eggs' by trying through legislation to force the public to pay more for using motor transportation than is warranted economically.

The Public Interest

"The public interest requires that it be allowed to choose for itself and use whatever form of transportation it thinks best adapted to its social and economic needs. The petroleum industry, certainly, is opposed to the employment, of attempted application, of strong-arm methods to destroy by law one cheap form of transportation in order that an expensive one may survive, or constantly to increase the cost to the public of its principal product, gasoline, by methods for which it has no responsibility whatsoever."

REPORT OF THE BUREAU OF MINES FOR THE MONTH OF DECEMBER, 1930

According to reports received by the Bureau of Mines, department of commerce, the production of crude petroleum in the United States during December amounted to 66,985,000 bbls. This represents a decline of 111,000 bbls. from daily average of previous month, and is 449,000 bbls. below December, a year ago.

All the leading producing states recorded declines in crude output in December. Daily average production in Texas fell below the 700,000-bbl. mark for the first time since June, 1928; California, below the 600,000-bbl. mark for the first time since November, 1924; Oklahoma, below 500,000 bbls. for the first time since September, 1926.

Field activity was further curtailed in December and only 527 oil wells were completed as compared with 659 in the previous month and with 1,060 in December, 1929.

The decrease in crude production in December exceeded the decline in runs to stills and stocks were materially reduced. Crude stocks at refineries east of California fell from 44,426,000 bbls. on December 1 to 41,191,000 bbls. on hand December 31, and pipe line and tank farm stocks east of California declined from 323,089,000 bbls. to 320,510,000 bbls. over the same period. California stocks of refinable crude showed a slight decrease but stocks of heavy crude and fuel oil continued to increase. Stocks of all oils on December 31 totaled 665,870,000 bbls., a decline from the previous month of 6,936,000 bbls. This decline was recorded mainly in crude stocks but stocks of refined oils showed a net decrease of about 1,500,000 bbls.

Runs to stills of crude petroleum amounted to 71,581,000 bbls., of which 66,889,000 bbls., or 93 per cent was domestic crude, and 4,692,000 bbls., or 7 per cent, was foreign crude.

The daily average production of motor fuel in December amounted to 1,108,000 bbls., a slight decline from the previous month. The daily average indicated domestic demand for motor fuel was 939,000 bbls., which is 9 per cent below November but is 7 per cent above December, 1929. Stocks of motor fuel on December 31 totaled 40,541,000 bbls., an increase over the previous month of about 1,800,000 bbls. but a decrease from the stocks on hand a year ago of about 2,700,000 bbls. At the current rate of total demand, the December stocks represent 38 days' supply, as compared with 34 days' supply on hand a month ago and with 40 days' supply on hand a year ago.

The outstanding occurrence for the minor products was the decline in fuel oil stocks east of California from 40,427,000 bbls. to 37,007,000 bbls. The decline in stocks of wax, which began in August, 1930, was continued.

The refinery data of this report were compiled from schedules of 342 refineries, with an aggregate daily recorded crude oil capacity of 3,689,690 bbls., covering, as far as the bureau is able to determine, all operations during December, 1930. These refineries operated at 63 per cent of their recorded capacity, given above, as compared with 349 refineries operating at 64 per cent of their capacity in November.

BILL FOR SEPARATION OF PIPE LINES OFFERED

WASHINGTON, D. C., Feb. 2.—Divorcing oil pipe lines from the producing, refining and marketing end of the industry, would be required under a bill introduced by Representative Homer Hoch of Kansas. Mr. Hoch said it is the business of pipe lines to transport oil no matter who offers it, without discrimination, and that they should have no interest beyond transportation.

"And yet we have a few big companies," said Mr. Hoch, "with vast interests as producers, refiners and distributors, owning and operating the pipe lines. Such ownership and control of pipe lines makes possible a strangle hold upon the industry. Through unreasonable regulations and conditions imposed by the pipe line companies they can discriminate in favor of their own interests as producers or refiners.

"Many years ago a similar situation existed with reference to the railroads and the ownership of coal properties. Big railroad companies were fast controlling the coal mines and dominating the coal industry. To meet that evil Congress passed in 1906 a law compelling the railroads to confine themselves to the business of transportation and to divorce themselves of their coal properties. I propose to apply to the pipe line companies exactly the same principle which was applied to the railroads."

Representative Hoch added that he has been promised a hearing by the House Interstate Commerce Committee on his bill. The hearing, he asserted, probably will be held the latter part of next week.

COMPANIES ANSWER CRITICISMS MADE BY GOVERNOR OF KANSAS

TOPEKA, Kans., Feb. 2.—Expressing himself as "astonished and appalled" at the failure of the Washington oil conference to provide relief for stripper oil wells in Kansas disconnected by the Prairie Oil & Gas Co. on January 1, Gov. Harry Woodring has set February 10 as a time limit when these wells be "hooked up with some facilities" and threatens to employ every resource of the government of Kansas to achieve the results he desires. Correspondence between Governor Woodring and E. G. Seubert, president of the Standard Oil Co. (Indiana) and with W. S. Fitzpatrick, chairman of the board of the Prairie Oil & Gas Co. follows:

Governor Woodring's Message

The message sent to Mr. Seubert follows: "I am astonished and appalled at the news from the oil conference in Washington yesterday to the effect that the promise held out to us for several weeks, that the Kansas fields would be protected, has failed. I want to urge upon you the great necessity of renewing your negotiations for the restoration of the Kansas stripper wells at once. Kansas will not sit idly by and see the very life squeezed out of its oil industry and the ruin of a large number of its oil producers and a catastrophe to a large section of the State.

"While the large oil interests are laying waste the Kansas fields they are importing oil from foreign lands, offering as the indefensible excuse for refusing the Kansas production that they have an oversupply from other countries. Why would it not be possible for you to cease taking through your subsidiary, the Pan American Petroleum Co., the same amount of oil you are refusing in Kansas?

"Moreover, Kansas refuses to be a victim of a controversy between the subsidiaries of the old parent Standard companies.

"I have been conservatively trained in the business world and I am opposed to governmental interference with private business; but this situation presents a challenge to every right thinking man, involving as it does the old monopolistic system. As governor, I am determined that no stones shall be left unturned to protect the Kansas oil products. The large oil interests cannot hope to hold Kansas by the throat with one hand and choke the life out of its crude oil industry with the other hand. It is taking the money out of the pocket of the people of Kansas for its own product. Whatever is possible for the state government to do to save this situation, whatever legal steps or police power lies in the hands of Kansas will be utilized with the utmost vigor.

"Time is the essence of the present critical situation because of the imminent destruction of the Kansas stripper wells. Hence I urge with the utmost emphasis that the Kansas stripper wells be hooked up with some facilities not later than February 10. All details as between the Prairie Oil Co. and the Prairie Pipe Line Co. and your company is your problem. I am appealing to you as the representative of the biggest figure in the oil industry connected with the Kansas situation to solve this problem without the necessity of governmental interference, but if appeals fail, every resource of the Kansas government will be invoked to get desired results. While I am addressing this appeal to the Standard Oil Co. of Indiana, my purpose is to reach all factors in the Kansas situation."

Mr. Seubert's Reply

The following telegram regarding the stripper oil wells problem was sent to Gov. Harry C. Woodring of Kansas by Edward G. Seubert, president of the Standard Oil Co. of Indiana:

"Replying to your telegram of Wednesday, received on my return today, we are astonished at your singling out Standard Oil Co. of Indiana when we have been doing everything possible to aid the owners of stripper wells. As was stated by President Reeser of the American Petroleum Institute in the conference called by Secretary of Commerce Lamont last Tuesday in Washington and agreed to by all representatives present, Standard of Indiana has taken the lead in offering relief to producers in the area affected. Our subsidiaries are buying about 16,000 bbls. of oil a day of the amount formerly marketed through the Prairie Oil & Gas Co. We cannot buy more oil directly from producers in Kansas because the wells are too distant from our gathering lines. We tendered an order for an additional 3,000 bbls. a day from the Prairie Oil & Gas Co. to be supplied from Kansas distress wells. We are ready to buy this additional oil even at the expense of paying their marketing, gathering and trunk line charges, which means paying a substantial premium. No other company has done anywhere near so much. The Prairie company has refused our offer and we possess no means of compelling them to accept.

"The Standard of Indiana has no power to influence the action of other companies in regard to the problem of relief for distress wells. While we are doing more than any other company, we cannot settle the problem alone. It is unfair for you to ask us to do the impossible. Why do you not call upon the other companies to give relief as we have already done? We also respectfully point out that any threat against our marketing operations in Kansas is unfair and detrimental to Kansas industry. The gasoline we sell in your State comes from Kansas refineries employing Kansas labor and buying crude from Kansas producers exclusively. Not one barrel of imported oil is in any way affecting the Kansas situation. Not one barrel of oil from Kansas wells would take the place of oil that is imported if imports were to stop because other domestic sources would have the economic advantage. Standard of Indiana has cooperated and is now co-operating for the best interests of the people of Kansas. It deserves credit and support for what it is doing, rather than requests to do impossible things. Further relief must come from the others concerned. Our representatives will always be available for information or conference."

Message to Fitzpatrick

"Since our conference today I feel obliged to call your attention to several facts in the present Kansas stripper well oil crisis. An answer today from the Standard Oil Co. of Indiana is another attempt to evade the issue by giving reasons why results cannot be accomplished rather than constructive suggestions for a solution. Today your company and the Standard of Indiana both have been more concerned in placing the responsibility at someone else's door than in co-operatively working to save the small Kansas producers and a great natural resource of our State. Your company, the same as the Standard of Indiana, has grown exceedingly large and wealthy as the result of doing business in Kansas and Mid-Continent oil fields and both companies above all others of the large oil interests owe an obligation to the oil industry of Kansas to see to it that that industry is not destroyed in unfair weather.

"I remind your company that your obligation to these small producers in your own vicinity is paramount to the responsibility of any other company because in effect you are more or less in the position of a public utility. Moreover, it is my understanding that the Prairie company contemplates engaging in the marketing of gasoline and other oil products through filling stations located in Kansas in the very near future. I believe your products will not be received favorably in Kansas if it is generally understood that it was an order of your company which sounded the death knell to the independent producers and the stripper wells of Kansas on January 1 and that you had made no move since to alleviate the situation. Your company may lose money temporarily by again taking the oil from these wells at this time but there have been many fat years for your company in Kansas. I am holding your company with others directly responsible for a solution of this problem not later than February 10.

"I assure you Kansas desires to cooperate with the companies organized under its laws but we must have evidence of your willingness to join in such cooperation. I do not believe in government interference with private business but I am assuring you as I have today assured the Standard of Indiana that unless this situation is met by the leaders of the oil industry doing business in Kansas that the State will avail itself of every means at its command to save a great industry from annihilation."

Mr. Fitzpatrick's Reply

"Your telegram of January 30 received and noted. I stopped at your office yesterday to pay my respects as a citizen of Kansas to a neighbor with whom I have had friendly acquaintance for several years. I had read in the papers that you had given out a statement concerning the oil business but had not been able to see it. You were kind enough to show me the statements and instead of passing the buck of trying to lay the blame on the Standard of Indiana for the conditions of which you complained in your telegram to Mr. Seubert and the President you will no doubt remember that I explained to you some of the extenuating circumstances surrounding the position in which the Indiana company is now placed as well as our own. The situation in which we find ourselves in the present emergency is what is called an economic situation. At the present time we do not have refineries or marketing outlets to take care of any oil purchased by us. We do not have the markets for resale that we have enjoyed in years past. Our tankage is full and if we were to comply with your request in addition to purchasing the oil for which we have no need and no market we would be required to build steel tankage in which to store it. None of these things can we do. In years past when we had markets for the resale of Kansas and Oklahoma crude we have many times done these things more from the promptings of desire to help what we regarded as a temporary distress situation than from the hope of profit.

"We have taken oil in excess of our market outlets until we have accumulated a stock of approximately 55,000,000 bbls.

"We may and perhaps will as opportunity develops acquire refineries in Kansas or elsewhere but it is not encouraging to invest capital in localities where high officials erroneously or inadvertently advise the public that we have done nothing and are not now willing to do anything that might be helpful in promoting the prosperity of the oil industry and the states embraced in the Mid-Continent Field. We have never bought anything from the people in the Mid-Continent Field for which we did not pay the highest going prices and if and when we have something to sell we are entitled to and hope to have a fair field in which to sell it relying on the quality of our merchandise together with the excellence of our service to popularize our product with the public.

"If the time ever comes in Kansas where boycott against individuals or concerns having large capital investment in the State should be regarded as necessary or advisable such sentiment should find its inspiration and suggestion somewhere other than the State Capitol. While our attitude in this matter has consistently been distorted we have refrained from hurling bricks or passing the buck confident that our business operations from the very beginning to this date which have always been conducted on a basis of friendship and fair dealing to the producers have engendered in the minds of the public a feeling of assurance that the Prairie Oil & Gas Co. has in the past and will in the future do all that it can to help."

Lamont's Proposal

A proposal has been submitted by Robert P. Lamont, secretary of commerce, to the big oil companies, which, if accepted, would provide a market for the remaining 14,000 bbls. of stripper well production in the eastern Kansas and northern Oklahoma fields.

The suggestion came in a conference between Mr. Lamont and Alfred M. Landon, representing the Kansas independent producers. It is understood the secretary of commerce said it would be a fair settlement.

The Standard of Indiana sent Mr. Lamont a copy of a telegram sent to Governor Woodring of Kansas offering to buy 3,000 bbls. a day of the stripper well production, which the Standard asserted the Prairie had refused to sell.

If the Standard of Indiana can arrange to buy the 3,000 bbls., Lamont proposed to the Standard of New Jersey it purchase 4,000 bbls. of distress oil from the Prairie.

The plan proposed would have the Gulf and the Texas take 7,000 bbls. a day from the Prairie in the flush fields in Oklahoma, where it can be delivered to their line, and in exchange the Prairie would take an equal amount of "distress" oil from the stripper wells.

PRORATION SUPPORTERS HEARD BY COMMISSION

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if the prayer of the petitioners to increase Oklahoma City's outlet to 10 or even 5 per cent of its potential is granted it will be impossible to hold the East Texas operators in line and that their field constituted the most serious threat that confronts the oil structure. East Texas operators can produce oil at 35 cents per barrel and make money, he said. Their lifting cost would be negligible. He expressed the belief that if Oklahoma City and the East Texas fields are permitted to produce more oil than current requirements demand, it will ultimately mean a complete loss of market for many thousands of small wells in the two states, but particularly in Oklahoma.

Roy Johnson's Testimony

Roy M. Johnson, owner of settled production in Oklahoma and Texas, spoke on behalf of the owners of the 60,000 small wells in the State, 30,000 of which average only 2 bbls. per day production. To open the Oklahoma City Field to a materially increased production would destroy the market for the oil from thousands of small wells because the purchasers of oil would favor the fields in which the gathering charge was least. It cost 30 to 36 cents per barrel to gather oil in the stripper well fields while in Oklahoma City and other gusher fields the gathering charge runs from 2½ to 5 cents per barrel.

Mr. Johnson stated his belief that if Oklahoma City is opened even to 5 per cent of its potential it will have a serious effect on proration in other states and would ultimately mean the abandonment of many thousands of wells in Oklahoma, and other states where the lifting charge even under present conditions is almost as great as the market price paid for the product. He said 10 wells in the Kettleman Hills Field in California can supply that State with oil and that 100 wells in the same field could supply the crude oil requirements of the country.

Mr. Johnson compared the East Texas Field to Venezuela in oil potentiality and that its favorable geographical location and the cheapness with which it could be developed made it a dangerous competitor of the Oklahoma City Field if both fields are not held down to actual requirements.

Bartlesville Sand Wells

J. B. Steele, superintendent of the Kewanee Oil & Gas Co. and the Enterprise Transit Co., described the plight of operators in the old settled Bartlesville sand fields of Oklahoma who had been deprived of a market for crude by reason of the withdrawal of the Prairie Oil & Gas Co. as a buyer. He mentioned 120 wells that nominally produced 173 bbls. of oil but 1,100 bbls. of water along with it as fair samples of the physical status of stripper wells in the northern Tulsa and southeastern Osage County fields. He said the Stanolind Crude Oil Purchasing Co. had tentatively agreed to run a portion of the oil that had lost its market, but that he had been informed the company was awaiting the outcome of this hearing before making a final decision. Mr. Steele feared that there would be no relief for the unmarketed production if the percentage of proration is raised in the Oklahoma City Field.

BAN ON OIL IMPORTS OPPOSED BY AMERICAN GAS ASSOCIATION

By Charles E. Kern
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Jan. 31.—At the conclusion of the hearing of the oil men by the senate committee on commerce Senator Johnson asked whether there was anyone opposed to the proposed legislation and four members of the audience arose and J. B. Klumpp, chairman of the gas oil committee of the American Gas Association declared that he objected to the bills before the committee and asked to be heard. His appearance was evidently a great surprise to the advocates of the Capper bill favoring an embargo on oil importation. The speaker was told that he would be heard at the conclusion of the arguments of the proponents of the embargo plan.

Mr. Klumpp had prepared a brief in which he undertook to show that shutting out foreign oil would be reflected in the price of gas furnished every city of the United States. He claimed that every 1 cent added to the cost of a gallon of crude oil would add 1½ cents to the cost of gas oil and said that would result in an increase in the cost of gas furnished to consumers all over the United States amounting to from 3 to 5 cents per 1,000 feet.

The American Gas Association, he said, is acting on behalf of about 650 of the largest gas companies manufacturing about 90 per cent of the gas made in the United States. Petroleum or its products is used in the production of about 61 per cent of all the city gas manufactured in the United States and he opposed an import duty on petroleum. Such a duty will restrict the quantity of gas oil that will be available and necessary for the production of the 273,000,000,000 feet of gas that much be manufactured yearly from this oil.

"The quantity of gas oil used in gas manufacture amounts to about 24,000,000 bbls. a year. The quantity of gas oil required by gas companies on the Atlantic Seaboard is about 60 per cent of the total of all gas companies requirements. In the Mississippi Valley about 20 per cent and on the Pacific Coast about 20 per cent.

"Authoritative statistics showing the quantity of oil refinery products produced and delivered, combine gas oil and fuel oil under one heading, so for this reason it is impossible accurately to determine the amount of gas oil available, since the largest proportion of fuel oil is not gas oil. Fuel oil includes heavy residuals remaining after the distillation of the crude oil, "cracked" oils from which the increased gasoline production is now being obtained, and heavy crude oils that are not fit for gasoline production or gas manufacturing purposes.

Shortage of Gas Oil Caused by Gasoline

"When the process of crude oil refining consisted of simple distillation, that portion of distillate obtained between kerosene and lubricating oil was sold as gas oil. However, with the introduction of the cracking process in refining, the gas oil portion is still further reduced to gasoline and a heavy residue useless for gas making purposes remains.

"The subjection of gas oil or fuel oil to the cracking process is analogous in results to the subjection of gas oil to the gas making process, in that heavy and ungasifiable residiums are left; gasoline being the desired product in the former instance, and gas the desired product in the latter instance.

"As the demand for gasoline increases, a stringency in gas oil for gas making purposes must be expected, since it is the same constituent which makes oil valuable for either gasoline or gas making purposes. Even today, some of the largest producers of gas oil have refused to bid on gas oil contracts for the gas companies, due to the fact that their gas oil is needed for gasoline production. Hence, any restriction on the production or supply of crude or gas oils will be reflected in the cost of manufacturing gas for the gas consumer.

"The general use of automobiles has increased by leaps and bounds and their use will necessitate the increased production of gasoline, and in order to produce this gasoline, the oil companies will have to adopt the most modern methods of oil cracking. Thus will the remaining gas oils be called upon to further the gasoline production and a gas oil shortage may be anticipated by the gas companies.

Coal Gas Installations Expensive

"In the gas industry, the only substitute for carburetted water gas is coal gas, produced in coke oven plants or retort plants. The least expensive type of coal gas plant requires an investment about twice that for a carburetted water gas plant of corresponding capacity, and considerable more investment is necessary for coke oven plants; so that to replace all water gas plants would necessitate an enormous duplicate investment and would require many years to complete. Coal gas plants must be operated continuously and therefore are used as base load plants. Peak loads and unusual demands must be carried by the carburetted water gas plants.

"Coal gas plants, however, are being rapidly installed in certain localities and coke oven plants are also being installed where the situation is large enough to provide a coke market and a large gas demand, but the increase in total capacity hardly meets more than the increasing demand for gas. Therefore, unless the gas manufactured in the present carburetted water gas plants contains considerably less oil per 1,000 feet, no diminution in the total demand for gas oil by the gas companies can be expected.

"One very important controlling factor which affects the installation of coal gas plants, is the disposal of large quantities of excess coke produced which must be marketed at reasonable rates to make these installations commercially possible. A great increase in the installation of this type of gas producing plant would create a large overproduction of coke and by-products which it would be impossible to market at rates sufficient to make the cost of gas thus produced reasonable or feasible.

"The gas industry is a permanent industry. It has thousands of millions of dollars invested in supplying practically every city home in the United States with a fuel necessary for domestic use. Gas service provides fuel and heat delivered in a way that relieves human effort as no other fuel service can, and every exertion must be made to continue this gas service to the American householder at a price that must be reasonable and within reach.

"A good supply of gas oil is necessary to manufacture a sufficient quantity of gas to maintain this service. The oil supply in this country should be conserved and not used up in such quantities as today's production indicates. All restrictions to the importation of foreign petroleum should be opposed and, wherever possible, these foreign crude oils should be produced to add their quota to supply the great demands of the world. The United States should not be called upon to so intensively draw on its remaining and fast depleting oil resources.

"It is evident from the foregoing that the manufacture of carburetted water gas will necessarily be continued for a long time. Therefore, the gas industry must look for a continuance of a large supply of good gas making oil, as nothing can take its place. To get this supply, every effort should be made to guarantee its production or importation."

REPORT OF PETROLEUM CORPORATION IS OUT

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ing of stockholders M. C. Dipple was elected a director, succeeding L. S. Sheets, resigned. At subsequent directors' meeting the officers were re-elected.

Barnsdall Corp.

Report of Barnsdall Corp. for 1930, it is reported, will show a net profit of between $5,080,000 and $5,192,000 after depreciation, depletion, federal taxes and year-end adjustments equal to between $2.25 and $2.30 a share on 2,257,635 shares of combined class A and B outstanding on September 30, 1930. In 1929 net profit was $7,205,161 or $3.19 a share on 2,258,327 combined shares then outstanding. The 1928 net was 4,039,861 or $2.25 a share on 1,794,451 combined shares.

Due to its expansion in gasoline lines from the Mid-Continent and in view of doubtful oil situation, the company deemed it best to conserve cash resources and recently reduced quarterly dividend to 25 cents from 50 cents. In 1930 Barnsdall defrayed cost of refinery improvements from reserves. The company recently paid about $1,250,000 for its interest in the gasoline line for which it resorted to outside borrowing. Cash will show a considerable decline from December 31, 1929, although current position will be satisfactory. Cash at end of 1929 aggregated $2,832,886.

CRACKING IS STEADILY GAINING IN IMPORTANCE

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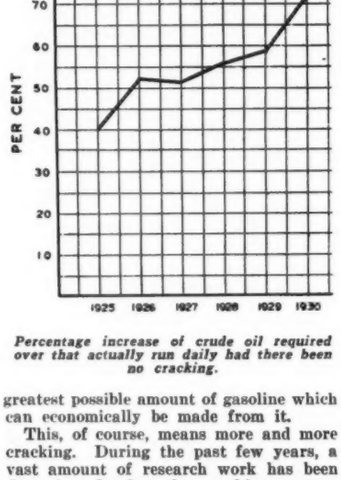
lishment of proration in crude oil production. Proration means restricting the production of crude oil reasonably close to the needs of the market. Carried to its logical conclusion, this will mean that each barrel of crude must furnish the



Percentage increase of crude oil required over that actually run daily had there been no cracking.

greatest possible amount of gasoline which can economically be made from it.

This, of course, means more and more cracking. During the past few years, a vast amount of research work has been done in adapting the cracking process to various and changing conditions and improving operating practice. A number of charging stocks from a wide variety of crudes have been subjected to test cracking runs, and the results of this mass of experimental work have been analyzed.

Stocks tested have been from crude oils produced in leading fields of United States, Mexico, South America, Europe and Asia. It is the purpose of this series of articles to lay before the oil industry the results of this work.

REFINERY MARKET IN OKLAHOMA IS DULL

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opment which has cast a shadow over the entire Mid-Continent industry during the past month.

The decision as to the increase in Oklahoma City production will have direct bearing on the operation of several refineries in Oklahoma and outside the State and may be the determining factor in the continuance of the present restriction of plant operations. It is possible that both situations may be cleared up so far as the immediate refinery market is concerned within the next few days.

Results of Curtailment

The Bureau of Mines report covering December refinery operations in United States shows the results of the plant curtailment programs which have been made effective in several areas. Average daily crude oil runs to stills at Mid-Continent refineries were 455,010 bbls. which compares with 509,322 bbls. for December of the previous year.

Despite this 55,000-bbl. daily reduction in crude oil runs to stills there was a difference of less than 200,000 bbls. in the total production of gasoline at refineries for the two months. This was largely due to the increase in the production of cracked gasoline which tended to offset the reductions in the quantity of crude oil refined. However, gasoline stocks at the start of the year in the Mid-Continent were approximately 350,000 blbs. less than on the same data of the previous year.

The refinery curtailment program has its greatest reflection in kerosene. The production in the Mid-Continent for December totaled 785,000 bbls. which compares with 985,000 bbls. for December of last year. Due to this curtailment of output which was effective all of last year kerosene stocks on January 1 of this year totaled 862,000 bbls., a reduction of approximately 50 per cent when compared with the 1,214,000-bbl. total for January 1 of the previous year.

The production of fuel oil and gas oil has also shown a substantial decrease, the total of 5,549,000 bbls. being approximately 18 per cent less than the 6,637,000 bbls. for December, 1929. The government method of handling stocks of these products has been changed this year and it is impossible to obtain an accurate comparison of inventories for the two periods.

The government data for the Mid-Continent in general reflects conditions for the entire country. Crude runs to stills have been reduced in all the principal refining areas and stocks at the start of the year were approximately 3,000,000 bbls. less than on the same date in 1930.

Gasoline and Naphtha

Among the refiners who are accustomed to sell at the low of the market offers to sell U. S. Motor gasoline over February at 4⅛ and 4¼ cents brought few orders from jobbers. Some resale material, usually low in antiknock rating, was sold as low at 4 cents.

Other refiners reported a routine movement at prices which ranged up to 5 cents. Weather conditions have been favorable for a heavy consumption of gasoline considering the season and refiners with their own retail facilities report heavier shipments to their station departments.

No important changes were reported in the high gravity grades. Except for an occasional sale, 4⅜ cents was the low for the 400 endpoint grade. The 390 grade sold at a low 4½ cents, 375 at 4¾ cents and 360 and 350 endpoint at 5 cents. The low endpoint grades are not plentiful in Oklahoma despite the low prices prevailing for natural gasoline.

Kerosene

Several refiners reported a more active demand for kerosene. A few who have been selling 41-43 water white kerosene at a low of 3 cents advanced to 3⅛ cents and some to 3¼ cents. However, specification material was still available from a few sources at a low of 3 cents.

The season of heavy buying in kerosene is approaching and some sellers expect that prices can be advanced from the present low levels which became effective last year. As previously explained, the statistical situation of kerosene is much better than it was a year ago both in regard to current production and stocks. Just what effect the depression will have on the spring requirements for kerosene remains to be seen but the outlook for a higher market is favorable if the demand is near normal.

Natural Gasoline

Natural gasoline manufacturers ended January in a better statistical situation than had been expected at the start of the month. Some orders were carried over into February. However, new business was not active the first two days of the month and Grade AA was not strong at 3½ cents, the price established late in January. Grade A was scarce at 3¾

cents. The remaining grades were quoted at 3¼ cents.

Fuels

Additional weakness was apparent in some grades of gas oil and distillate and the high cold test grades of fuel oils were also a drug on the market. The mild weather is said to be responsible for the weakness in furnace oils and supplies are adequate in all parts of the consuming territory.

A 36-38 low cold test (light or dark color) with a flash under 190 is available at a low of 2⅝ cents. The same gravity grade which failed to meet one or more of the other specifications sold as low as 2½ cents. The higher gravity grades were also weaker.

Lubricants and Wax

No change is reported in the lubricant and wax market. Steam refined cylinder stocks are not moving regardless of price except on contracts and to regular customers. There is fair demand for the low cold test bright stocks but other grades are inactive. Few inquiries for wax were reported during the week.

DATE SET FOR VOTE ON OIL EMBARGO

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the crude price was affected by the prevailing price of gasoline, rather than vice versa. There is no way to definitely ascertain this, he said, but figures compiled over the past few years show increases and decreases in the price of both over certain periods.

He declared there will never be an unlimited importation of South American and Mexican oil into this country, chiefly due to the fact that companies engaged in the importing are backed by American capital, which likewise have extensive holdings in this country.

In support of this argument, Mr. Stewart reiterated that foreign imports into this country last year were below those of 1929. In fact, he added, the cut in importations was practically proportionate to the cut in domestic production brought about through proration.

Asked by Senator Johnson to what extent his own company plans to import crude and refined petroleum products during the present year, Mr. Stewart said the Mexican importations would approximate 9,000 bbls. a day while the Venezuelan imports by his company would total approximately 13,000,000 bbls. of fuel oil and 8,000,000 gallons of gasoline. His company alone, he added, owns mineral rights on 5,300,000 acres of oil land in Mexico and Venezuela. It likewise operates a refining plant in Venezuela with a capacity of 250,000 bbls. daily.

Mr. Stewart was preceded on the stand by Albert R. White, vice president of the Associated Industries of Massachusetts; Senator Millard Tydings, Democrat, of Maryland, and George M. Rommell, industrial commissioner of Savannah, Ga., all appearing in opposition to the Capper and Shortridge proposals.

Maryland View

Senator Tydings, using the same figures he presented the Senate when the oil tariff fight was on last spring, told the committee the enactment of the $1 tariff on crude would cost the consumers of this country a total of $980,000,000 a year. Despite objections of Senator Capper, author of the embargo bill, that no legislation would become entirely effective, a presumtion upon which Senator Tydings based his argument, the Maryland senator declared enactment of either the embargo or tariff resolutions would place a "tremendous tax burden upon the farmers of this country."

"You may be able to shorten the bread lines in Oklahoma and Kansas, but you will only add to them in Baltimore and other eastern cities, where the imported fuel and crude oil plays an important part in business," he declared.

"The people of the country are not aware of the far-reaching effects of this legislation," Senator Tydings added. "And I don't believe there is time yet this session for Congress to fully consider every phase of the problem."

New England Protest

Mr. White warned the committee that enactment of the embargo bill would mean an increase of 8 cents per gallon for gasoline in New England states and would double the price of fuel oil, an important factor to the manufacturing interests in that section. He expressed a fear that other nations of the world would retaliate against the United States once they found that this country had levied a peace-time embargo.

The objections of the city of Savannah and industrial interests located there to the Capper bill were placed before the committee by Mr. Rommell. He said much of the manufacturing at Savannah and other Georgia cities is dependent upon an adequate supply of cheap fuel oil, which would be cut off by the enactment of the embargo.

Requa on Stand

The Senate commerce committee concluded its hearing today. Witnesses told of the destruction of their industries and the unemployment that would follow shutting out foreign oil by an embargo, which they were certain would increase prices.

William C. McTarnahan, president of the Petroleum Heat & Power Co. and vice president of the American Oil Burner Association, said an embargo or tariff on oil would destroy the oil burner industry because of prohibitive price of fuel oil. Six hundred manufacturers of oil burners who have invested nearly a billion dollars and 7,000 dealers employing 125,000 men joined in recording their protests. He said the people who would chiefly benefit by an embargo would be the large companies that have storage oil to increase in price.

J. P. Klumpp, representing the American Gas Association, entered the protest of 650 gas companies against any embargo to increase the price of oil and of manufactured gas.

Mark L. Requa favored the passage of a bill he had suggested creating a commission to act as a monitor in granting oil producers right to conduct their business in the interest of themselves and of the public, and to grant permits for any action the commission should approve. He took no position for or against an embargo.

CONTINUE TESTING RESEARCH

NEW YORK, Feb. 2.—Results of research work in the testing of gasoline and motor oils were discussed at a meeting of the American Petroleum Institute D-2 Committee on Testing held at the Lord Baltimore Hotel, Baltimore, on January 30.

F. A. Hull served as chairman at the meeting, which had approximately 70 members present. The program was featured by group meetings of technical committee A on gasoline and technical committee B on motor oils. Preliminary reports on the research work of the groups were rendered, with further discussion scheduled for another meeting to be held in Pittsburgh next month, where the reports will be prepared in final form for submission to the American Society of Testing Materials. Pending this later meeting, none of the reports of the committee will be available for publication, it is stated.

H. D. MACKENZIE DEAD

H. D. Mackenzie, statistician for the Tidal Oil Co., Fort Worth, Tex., died suddenly in his home in Fort Worth, Tex., Thursday, January 29. Mr. Mackenzie, who was born in 1881 in Cairo, Mich., became an expert draftsman when a young man, and he entered the oil business as a draftsman, in the Jennings Pool, Louisiana. He also served with the Gypsy Oil Co. and Carter Oil Co. in the Mid-Continent, spending 20 years in this area. He resigned to organize his own mapping company, opening offices in Fort Worth and Tulsa. In 1922 he joined the Tidal Oil Co. as statistician, which place he held at the time of his death. Mr. Mackenzie and Miss Anne Noble were married in Tulsa in 1918. Besides his wife, he leaves a brother, Fred Mackenzie, of Detroit, Mich., and a sister, Mrs. Emma Glandfield, of Seattle, Wash. Funeral services were held in Tulsa Saturday.

AUTHORS OF PAPER ON PUMPS RECEIVE MEDAL

The Melville medal of the American Society of Mechanical Engineers, established in 1914 by the bequest of Rear Admiral George W. Melville, honorary member and past president of the society, for an original paper or thesis of exceptional merit, has been presented jointly to Prof. Herman Diederichs of Ithaca, N. Y., and William D. Pomeroy, Seneca Falls, N. Y., as co-authors of the paper on "The Occurrence and Elimination of Surges or Oscillating Pressures in Discharge Lines From Reciprocating Pumps."

William D. Pomeroy

Professor Diederichs is professor of experimental engineering and director of the Sibley School of Mechanical Engineering, Cornell University. Mr. Pomeroy, who is an authority on oil pipe lines and pipe line pumps, is vice president and general manager of Goulds Pumps, Inc., Seneca Falls, N. Y.

TEXAS PRORATION TEST BEGUN BEFORE COURT

AUSTIN, Tex., Feb. 2.—The suit of the Danciger Oil & Refining Co. against the Railroad Commission, considered a test of the commission's right to limit oil production, is on trial in district court here.

The Danciger company, operating in the Panhandle Field, obtained a temporary injunction restraining the commission from enforcing proration against that company. The trial was on the company's petition to make the injunction permanent. A previous effort by the State to have the temporary injunction dissolved had been unavailing.

C. L. Black of Austin, for the Danciger company, said the Railroad Commission merely had the power to prevent physical waste, that it did not have the authority to curtail production. He said curtailment of production violated the Constitution because it deprived the operator of his property without due process of law.

Black asserted the Danciger company was not operating wastefully, that it had no oil in storage and that it was not creating any fire hazards. As a special issue, the Danciger company contended the enforcement of the proration order would prevent its fulfilling the terms of a contract entered into before the order was promulgated.

The case was heard by District Judge Charles Wheeler. Neither side asked for a jury. The trial was expected to last all week.

HOWARD E. COLE RETIRES

NEW YORK, Feb. 2.—Howard E. Cole has retired as vice president of the Standard Oil Co. of New York and William B. Walker was elected to fill this vacancy. Philo W. Parker was also named as a director of the company.

Order Okla. Natural To Cut Rates in 46 Towns Until April 1

OKLAHOMA CITY, Okla., Jan. 31.—The Oklahoma Corporation Commission today issued a verbal order to the Oklahoma Natural Gas Corp. to temporarily reduce its rates in certain specified Oklahoma cities and towns 10 cents per 1,000 feet.

The order will be effective in February, March and April. It came in the midst of a hearing instituted by the corporation commission and which had been in session three days.

The cities and towns in which the new order is applicable are: Arcadia, Bethany, Bixby, Britton, Broken Arrow, Chandler, Coweta, Davenport, Dawson, Depew, Edmond, El Reno, Garden City, Haskell, Kelleyville, Luther, Meeker, Muskogee, Norman, Oklahoma City, Peckham, Porter, Prague, Preston, Putnam City, Red Fork, Sapulpa, Shamrock, Shawnee, Stroud, Tulsa, Turley, Wellston, Yukon, Ardmore, Healdton, Oil City, Wilson, Wirt, Ringling, Tishomingo, Madill, Wagoner, Blanchard and Guthrie.

E. C. Deal, president of the Oklahoma Natural Gas Corp., in a statement made following the issuance of the order said that the commission had not given the opportunity to present the true facts.

"The commission devoted three days to hearing the testimony of its own witnesses and then announced its so-called temporary order bluntly denying the company the right to be heard. It refused to hear a single pertinent fact offered by the company," said Mr. Deal.

Mr. Deal said the company had spent $20,000,000 in new capital in improving its facilities and service; that it had suffered severely from loss of industrial fuel business in 1930, and that its gross revenues had been greatly depressed and decreased. "Under these conditions," he continued, "the company cannot operate on the temporary rates and render adequate service to our consumers."

The hearing before the commission will be continued on February 11.

The Oklahoma Natural Gas Corp. some time ago notified natural gas producers of a reduction in the price it would pay for natural gas at the well to 6 cents per 1,000 feet. It had been paying 8 cents and 10 cents per 1,000.

TEXAS UNIVERSITY LEASES

AUSTIN, Tex., Feb. 3.—Robert L. Holliday, El Paso, and Edward Crane, Dallas, were reappointed to the University Regents' Land Committee and to its legislative committee by the board Monday, the third member of these and all other committee selections to be decided later. Mr. Crane and Mr. Holliday conferred with legislators on the introduction of university bills to enlarge blocks of land for oil leases and extend the period for development from three and five to five and 10 years.

CHEYENNE RATE HEARING

CASPER, Wyo., Jan. 31.—Cheyenne Light, Fuel & Power Co. is asking a rehearing on its natural gas rates before the State Public Service Commission, and is to be granted a hearing on some date in March to show why the rehearing should be granted. If due cause is shown the commission will set a date when the gas rate issue will be argued.

Several months ago the Cheyenne company sought to change its gas rates as it had found it necessary to supplement its supply from the Wellington Field with gas piped from near Amarillo, Tex. The increase was denied and an adjustment of rates followed. A subsequent endeavor to reopen the case was denied.

LINCOLN TO BUILD STORAGE

The Lincoln Oil & Refining Co., of Robinson, Ill., will build a storage warehouse and bulk plant at Evansville, Ind., to care for its increasing business in this section.

HOW ANOTHER INDUSTRY DID

(Continued from Page 28)

export its allotted share of the world's sugar. Tentative agreements have been obtained from the Netherlands, controlling Javanese production, from Germany, Hungary, Czechoslovakia, Cuba, Belgium and Poland with Peru and Santo Domingo under negotiation.

In reference to the consuming but virtually nonproducing countries it is planned to have Great Britain, France, Yugoslavia, Argentina, Italy, and Japan enter the international group in order that there would be no inducement for them to attempt to violate the provisions of the international agreement by exporting.

France has already curtailed its 1931 crop with the view of using its beet sugar surplus in the domestic market. Russia is expected to enter the agreement as it has only a small surplus.

It is significant of the earnestness of the signatory countries that all the others agreed to a further limitation in order to permit the compromise with Germany.

Another session will be held at Cannes within the next few weeks when a standing commission will be selected and an international research group named to further the progress of the industry and to suggest new methods of consumption, including world-wide advertising campaigns.

It has been agreed that the only deviation from the schedule to be adopted will be in the event that home markets show a stronger demand than the allotted domestic quota. In that case the commissioners of the international group will conduct an investigation and, if necessary, raise the allotment to meet the requirement of the domestic consumers.

One effect of such stabilization that was emphasized in all the discussions was the elimination of uneconomic marketing methods which followed overproduction, precisely as in the oil industry.

This is one example of a great international industry deliberately setting out to solve its own problems in its own way. Its difficulties were no less than those of the oil industry; its production as widely scattered and its markets as universal.

Oil men are just as convinced of the folly of overproduction and have suffered as much as the sugar industry but although world co-operation was approved at the St. Louis meeting of the executive committee of the Institute in February, 1929, it seems to have been dropped after Attorney General Mitchell's opinion to the Oil Board.

The suggestion of Secretary Wilbur, chairman of the Federal Oil Conservation Board, that if proration is a solution in this country it should be equally applicable to imports is in line with what the sugar industry is doing of its own volition.

Regulation by governmental agencies would be altogether different. The less any industry has to refer its difficulties to governmental adjustment the better. The railroads know that.

It is only necessary to read the report of the hearings in the Senate Committee of Commerce to get an idea of how little Washington knows of the practical problems of the oil business or of a definite remedy for its ailments.

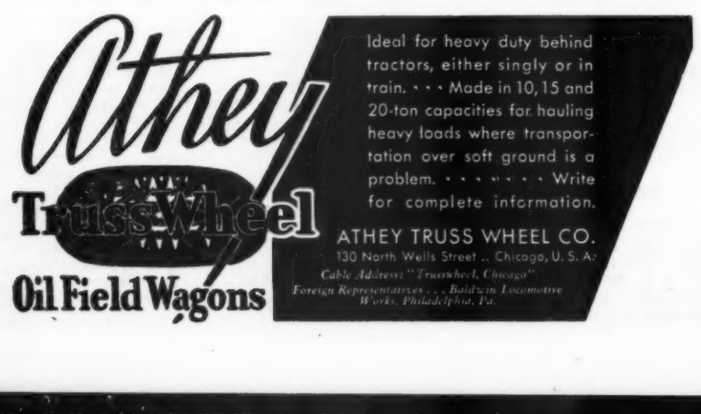
It seems almost impossible for men in politics to get a broad gauge view of any question where they think only of the supposed interests of their immediate constituency. Those from oil producing states speak for the producers and those from oil consuming states think only of the consumers.

So, instead of being considered as a question within the industry, curtailment of overproduction to meet demand is distorted into a discussion of theoretical effects wholly outside the industry, just as if the oil men must do business at a loss so others may prosper.

The absurdity of that position is evident when it is remembered that no business can long continue on a losing basis and those others who depend upon profiting from the oil industry's plight sooner or later must find themselves deprived of their supposed advantage.

Overproduction, the world over, is an oil industry question, just as overproduction of sugar and overproduction of copper or any other world commodity and it can be most satisfactorily settled by the industry directly involved.

The leaders of the oil industry know this but apparently have been deterred by obstacles that have been ignored by the sugar interests.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ETHICS CODE CHANGED BY TRADE COMMISSION

WASHINGTON, D. C., Feb. 3.—The Federal Trade Commission today disapproved 18 trade practice rules of the petroleum industry, adopted in 1929. Only three of the rules as originally approved by the industry were retained by the commission.

NEW YORK, Feb. 3.—W. R. Boyd, Jr., executive vice president, American Petroleum Institute, said: "The action by the Federal Trade Commission comes as a complete surprise. It had been assumed that the 21 trade practice rules were entirely satisfactory to the commission.

"Paul E. Hadlick, secretary of the Institute's Division of Marketing, notified chairmen of all regional and state code committees to postpone until further notice from the Institute all meetings for administering the code. The first mid-year meeting of the division of marketing will be held in the Stevens Hotel at Chicago on March 4 instead of at Tulsa, May 13 and 14.

Late Fields

(Continued from Page 32)

ductive than the northeast corner where the first well was drilled. A commercial producer on the new location would start a drilling campaign in the southwest part of the field. Indian Territory Illuminating Oil Co. has a group of leases offsetting the test.

Several tests in the Oklahoma City Pool are bailing and are expected to be completed in the next day or two. Anderson & Prichard Oil Corp. and Phillips Petroleum Co.'s No. 1 Sandness, NE cor. SE NW, Section 10-11-3w, found the Wilcox sand at 6,316-37 feet and was bailing. Phillips Petroleum Co.'s No. 1 Walnut, NE cor. NW NE, Section 3-11-3w, was bailing from a total depth of 6,480 feet. Oils, Inc.'s No. 1 Hathaway, SE cor. SW NW, Section 2-11-3w, was bailing from a total depth of 6,490 feet. Dengail Oil Co.'s No. 1 Woodson, NW cor. SE NE, Section 10-11-3w, was bailing from a total depth of 6,475 feet. Indian Territory Illuminating Oil Co.'s No. 1 Terrace, NW cor. NE NE, Section 10-11-3w, had Wilcox sand at 6,266-6,337 feet and was landing 7-inch casing on top of the sand. Same company's No. 4 View Point, SW cor. SE, Section 10-11-3w, had Wilcox sand at 6,380-6,461 feet and was shut down after cementing the last string of casing.

In the Wewoka townsite pool, Deep Rock Oil & Refining Co.'s No. 4 Douglass (50A), SE cor. NW, Section 30-8-8, flowed 2,505 bbls. from the Wilcox sand at 3,930-37 feet in 6 hours and 5 minutes. Same company's No. 5 Douglass (50A), NW cor. SE, Section 30-8-8, cored Cromwell sand at 3,125-64 feet and was cementing casing on top of the sand.

The new well in the West Chandler Pool, has increased its production to 100 bbls. an hour. The well is Tom Slick Oil Co.'s No. 1 Athoff, NE cor. NW, Section 18-14-4, Lincoln County, a half mile south of production and after bailing for nine hours made 754 bbls. of oil. It increased the last two hours to 100 bbls. an hour. The total depth was 5,001 feet.

Jarvis & Holm's No. 1 Street, SW cor. SE SE, Section 16-7-8, in Seminole, Hughes County line pool, was completed for 75,000,000 feet of gas in sand at 2,902-23 feet, with 960 pounds rock pressure.

LOUISIANA

SHREVEPORT, La., Feb. 3.—Junior Oil & Gas Co.'s No. 1 Breard, Section 9-18-16, 15 miles northwest of Shreveport and approximately 10 miles north of the old Greenwood gas field of Caddo Parish, is a gas well estimated at 30,000,000 feet open flow, total depth 2,780 feet, producing from the Glen Rose formation of the upper Trinity series. No accurate gauge has been obtained due to leaky master valve but it gauged 1,100 pounds rock pressure before closing the gate and 1,300 after closing it in. Previous shallow and deep tests west, south and east were dry.

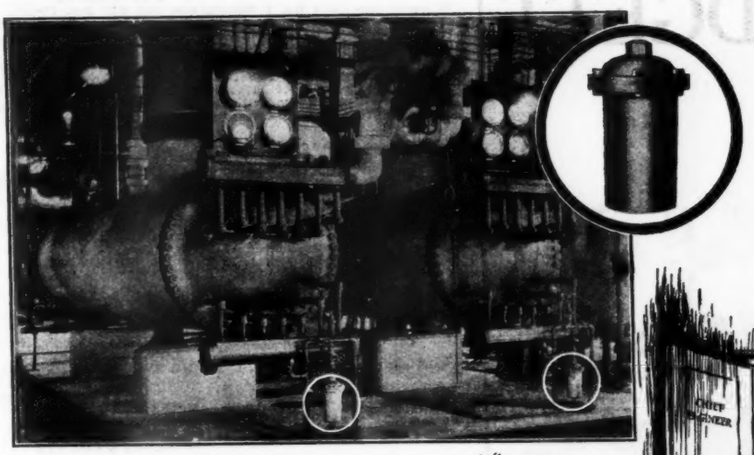
PETROLEUM GEOLOGISTS OF ALBERTA CONFER

CHATHAM, Ontario, Feb. 2.—At the annual convention of the Alberta Society of Petroleum Geologists, held at Calgary, the major operating companies, the government staffs and the University of Alberta were represented.

A symposium of technical papers was presented, the papers providing as complete a discussion as possible of the stratigraphy of Alberta. The papers included "Foxhills Formation of Southern Alberta," by J. O. G. Sanderson, Imperial Oil, Ltd.; "Details of the Bearpaw and Over and Underlying Formations in the Lethbridge Area," by Theodore A. Link and A. J. Childerhose; and "Stratigraphy of Bearpaw Formation Between Lethbridge and Eyremore Districts," by Clare M. Clarke. The formations of the Belly River series were discussed in "Sediments of Upper Montana Age in the Milk River Region," by B. F. Hake and C. C. Addison; "Geologic Section on Moldman River Between Lethbridge and Taber," by J. O. G. Sanderson and G. E. Wheeler, and "Pale and Foremost Beds in the Keho Lake, Champion and Eyremore Districts," by D. L. Powers. A further paper was prepared by S. E. Slipper and H. M. Hunter on the Foremost formation, but its presentation was deferred.

Colorado shale formations were discussed by J. B. Webb in "Stratigraphy of the Colorado Formation in the Foothills Between Bow and Berland Rivers," and by W. S. Yarwood in "Subsurface Geology of Red Coulee District," and "Subsurface Geology of Spring Coulee Area." A paper on Basal Colorado Beds, prepared by Messrs. Slipper and Hunter, was not presented.

Formations lying below the Colorado shales were discussed in part in Mr. Yarwood's paper; and also by J. O. G. Sanderson in "Ellis Formation of the Sweetgrass Hills." The stratigraphy of the Palaeozoic section, touched on in Mr. Sanderson's paper, was dealt with in detail by D. L. Powers in "Stratigraphy of the Palaeozoic Sediments of the East Sweet Grass Butte Montana."



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WILDCAT OPERATIONS IN OKLAHOMA

(Continued from Page 33)

Ault et al's No. 1 Hall, SE NW Sec. 25-9-19 .....Shut down 50 ft.
I. T. I. O.'s No. 1 Blake, SW NW Sec. 3-10-21 .....Shut down 3,007 ft.
Mid-Western's No. 1 Polster, C NE SE Sec. 32-10-32 ....Shut down 4,297 ft.

HUGHES COUNTY

Wright et al's No. 1 Ott, SE SW Sec. 15-5-11 .....Shut down 1,645 ft.

KAY COUNTY

Wilright Gas Co.'s No. 1 Wildegrube, NE SW Sec. 14-27-1 .....Drlg. 2,480 ft.
Lewis et al's No. 1 Harris, SE NW Sec. 14-25-1 .....Location.
Peters & Buckles' No. 1 Hayes, NW NE NW Sec. 24-28-3 .....Drlg. 1,900 ft.
Mummert Drlg. Co. et al's No. 1 Cormick, C NW SE Sec. 9-27-2 .....Drlg. 2,330 ft.
Blackwell Oil & Gas Co.'s No. 1 Harshman, Sec. 2-26-1w.Rig on ground.
Boucher Oil Co.'s No. 1 Jefferson, NE SW Sec. 32-26-1w..Fishing 1,175 ft.

KINGFISHER COUNTY

Prairie and Slick's No. 1 Wright, C NW SW Sec. 23-15-5w .....T. D. 6,890 ft.; plugged back to 5,100 ft.; shot 80 qts. at 5,045-56 ft.; no show.
Galt Brown's No. 1 Wolf, NW SE Sec. 6-16-7w .....Shut down 7,931 ft.

KIOWA COUNTY

Christian's No. 1 Jones, NE SE Sec. 8-7-18w .....Rig.

LATIMER COUNTY

Choctaw Gas' No. 1 Weaver, C NE NW Sec. 4-6-18.....Location.
Howard et al's No. 1 Holmes Inv. Co., SE SW NW Sec. 16-3-21 .....Drlg. 408 ft.
Mid-Western's No. 1 Unknown, C SE NW Sec. 15-6-11 ...Drlg. 1,535-85 ft.; no show.
P. English's No. 1 Unknown, NW SE Sec. 16-6-19 .....Drlg. 300 ft.
LeFlore Oil Co.'s No. 1 McBee, NW cor. Sec. 3-7-21 ....Shut down 3,601 ft.

LINCOLN COUNTY

Mote-Wheeler's No. 1 Stafford, NW NE Sec. 32-17-4 ....Drlg. 2,825 ft.

LOGAN COUNTY

Eason Oil Co.'s No. 1 Young, C SW NE SW Sec. 34-17-4w.Sand 4,919-42 ft.; made 870 bbls 21 hrs. and 485 bbls. the second 24 hrs.

McINTOSH COUNTY

Patterson et al's No. 1 Smith, SW cor. NW SE Sec. 32-9-16 .....Fishing 5,682 ft.

MUSKOGEE COUNTY

Rebold's No. 1 Miller, SE NE NE Sec. 32-13-19 .....Rig.
Sioux Oil Co.'s No. 1 Unknown, NW SE Sec. 21-11-19 ....Shut down 1,011 ft.

NOBLE COUNTY

Barnsdall's No. 1 Miksch, NW SW Sec. 12-21-1 .....Drlg. 4,849 ft.

OKFUSKEE COUNTY

Henry Oil Co.'s No. 1 Harjo, Sec. 36-12-9 .....Shut down 4,127-57 ft.; water; plugged back to 3,161-85 ft.; showing 10 bbls.
E. L. Robinson's No. 1 Rice, NW Sec. 2-10-9 .....Location.
Shepard et al's No. 1 Neveas, SE NW SW Sec. 3-13-10 ..Shut down 3,690 ft.

OKLAHOMA COUNTY

L. C. Hivick's No. 1 Sunset Addition, NW SW NW Sec. 17-11-3w .....Shut down 5,515 ft.
Mid-Kansas Oil & Gas Co.'s No. 1 Messer, SW cor. Sec. 32-14-3w .....Wilcox 6,697-6,771 ft.; shot with 90 qts. and 140 qts.; made 2,627 bbls. 7 days; completed for 700 bbls.
J. F. Cuniff, trustee's No. 1 Church Land, NE SW SE Sec. 17-13-4w .....Shut down 6,700 ft.

OSAGE COUNTY

Millard & Stanley's No. 1, SE SW Sec. 4-28-7 .....Drlg. 1,795 ft.

PAWNEE COUNTY

Rookstool's No. 1 Wylie, NW NE SW Sec. 6-20-5.....Drlg. 1,950 ft.
Sperry et al's No. 1 Mulirap, SE SW Sec. 2-22-5 .....Drlg. 3,464 ft.
L. E. Wentz' No. 1 G. Lilly, SE SW NE Sec. 26-22-3 ....Abandoned 4,328 ft.
Cochran et al's No. 1 Green, NE cor. SW, Sec. 15-23-5 ..Rig.

PITTSBURG COUNTY

J. Morrison's No. 1 Fowler, NE SE Sec. 13-7-17 .....Rig.
C. Kennedy's No. 1 Travis, C SW NE Sec. 15-7-14 .....Rig.
C. Canady's No. 1 Jones, NW cor. Sec. 14-8-14 .....Rig.

POTTAWATOMIE COUNTY

J. E. Crosbie et al's No. 1 Brown, NE NW SW Sec. 2-9-4 .....Spudding.

ROGER MILLS COUNTY

Ute Oil Co.'s No. 1 Williams, C SW Sec. 23-12-24w .....Drlg. 3,348 ft.
L. C. Hivick's No. 1 Davis, C NW NE Sec. 4-11-26w ....Shut down 2,905 ft.

SEMINOLE COUNTY

Sunray Oil Co.'s No. 1 Sunday, NW SE Sec. 35-5-5 .....Location.

STEPHENS COUNTY

Junior Oil Co.'s No. 1 Thompson, CNL SE SE Sec. 1-1-7w .....Drlg. 1,970 ft.
Ross Southard's No. 1 McKinney, NE cor. Sec. 25-1-8w..Shut down 1,063 ft.
G. Pace et al's No. 1 Pruitt, [illegible] .....Drlg. 1,886 ft.

WASHITA COUNTY

Cooper & Terhune's No. 1 Blocker, NW cor. Sec. 29-8-19w.Shut down 896 ft.
Burns & Prince's No. 1 Deck, SW cor. Sec. 21-8-18 .....Shut down 100 ft.
Petroleum Holdings, Inc.'s No. 1 Music, NW cor. Sec. 10-9-20w .....Shut down 280 ft.

WOODWARD COUNTY

Prairie Oil & Gas Co. et al's No. 1 Wilbur, NE cor. NW Sec. 22-23-17w .....Shut down 7,445 ft.

OKLAHOMA PANHANDLE

TEXAS COUNTY

Three Way Oil Co.'s No. 1 Crane, SW NW Sec. 11-1-1S .....Shut down 4,425 ft.
Palo Alto Oil Co.'s No. 1 Graves, NE SW SW Sec. 23-2-18e .....Spudded; shut down.

SOUTHERN OKLAHOMA

ATOKA COUNTY

Bryant et al's No. 1 Southern Trust, C SW SW Sec. 3-1s-14 .....Show oil 747-50 ft.; to test.
Stewart-Howland's No. 1 Howard, NW SE NW Sec. 6-4s-11 .....Shut down 100 ft.
Brookshire's No. 1 R. W. Rowland, NW NE SE Sec. 18-3s-10 .....Shut down 400 ft.

BRYAN COUNTY

Bryan County Oil's No. 1 Childs, NW SE SW Sec. 7-7-10..Drlg. 650 ft.
Bush et al's No. 1 Commerce Trust, NE cor. Sec. 35-6s-9 .....Shut down 690 ft.
Johnson et al's No. 1 Ussery, SE SW SE Sec. 14-16s-7e ..Shut down 485 ft.

CARTER COUNTY

Campen-Lasater Co.'s No. 1 Anderson, NE cor. SE NE SE Sec. 32-4s-2 .....Shut down 2,656 ft.

COTTON COUNTY

Gilbert-Lowery's No. 1 Harney, C SE SE Sec. 4-2S-11w..Drlg. 964 ft.

JEFFERSON COUNTY

J. H. Brown et al's No. 1 Norlett, SW NW NE Sec. 35-7s-8w .....Abandoned 2,528 ft.

LOVE COUNTY

G. Pace et al's No. 1 Burkhart, NE NW Sec. 13-8s-1 ....Drlg. 1,801 ft.
Batson & Sterretto's No. 1 Dillard, SE NE NW Sec. 25-6s-2 .....Show 5 bbls. 1,585-96 ft.
Hobbs et al's No. 1 Roberts, NE cor. SW Sec. 20-6s-3w ..Shut down 3,130 ft.

MARSHALL COUNTY

D. H. Curry's No. 1 Ward, NE SE SW Sec. 15-5s-6 ....Shut down 1,275 ft.
McCrory et al's No. 1 Adams, NE SW SE Sec. 31-7s-6 ..Show 532-40 ft.; shut down.

McCURTAIN COUNTY

Milton et al's No. 1 Vase, SW NW Sec. 26-6s-21 .....Shut down 2,287 ft.

STEPHENS COUNTY

Morrison's No. 2 Hightower, NE NW SW NE Sec. 15-3s-5w .....Drlg. 265 ft.
Andrea et al's No. 1 Patrick, C E half SE Sec. 3-3s-5w..Drlg. 100 ft.
Obermyer et al's No. 1 Skelton, NE SW SW Sec. 32-1S-7w .....Shut down 1,375 ft.

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Of Interest to Sales Departments

Code Committeemen Are Urged to Action By Chairman Seubert

Support and co-operation of the organized effort to rid the marketing branch of the petroleum industry of every unethical practice and unsound method now in use has been asked of members of committees working in the interest of the National Code of Practices for Marketing Refined Petroleum Products.

In a letter to the approximately 750 committeemen, Edward G. Seubert, Standard Oil Co. of Indiana, Chicago, Ill., chairman of the general committee of the American Petroleum Institute's Division of Marketing, suggested that committeemen "tighten up all along the line in requiring complete local observance of the spirit and letter of all the rules of the Code," and "support every constructive effort that is made to rid the industry of every unsound and uneconomic method employed in the marketing of petroleum products, most of them being too well known to even require explanation or comment."

"The Code is a voluntary conservation measure," he explained. "It is designed solely to abolish or control some of the evils of destructive competition. It is the composite work of hundreds of oil men and represents an honest effort to set up agreed standards that will result in fair dealing for all and in helping marketers to effect economies in operation. Every marketer should be willing to observe it in letter and spirit.

"Marketing executives and men faced with responsibility for gallonage, under the stress of competition, are prone to adopt shifting and temporary practices in the hope that the gain in one somehow may offset the loss in the other. All this is, and must inevitably be futile. In the end it reflects directly upon the marketer himself and reacts upon the welfare and profit of his company.

"Unsound practices devised for the purpose of appropriating competitor's outlets usually result ultimately in just exactly nothing. The competitor is forced to adopt a similar practice, and at the end of the year the number of outlets gained is substantially offset by the number lost. The cost of the effort is wasted and companies following such practices for any considerable period of time frequently imperil their own existence. The old Biblical law of 'an eye for an eye and a tooth for a tooth' still works—and it never pays.

"Where unsound marketing practices exist, some one company or individual always took the initial step that started the demoralization. Who that company or individual was is of no importance now. The situation can only be remedied by each company and individual, of its own

(Continued on Page 132)

ENTERS SPECIALTY FIELD

The Associated Oil Co. of San Francisco has entered the specialty field according to an announcement by P. E. Allan, domestic sales manager. The newly created department will be in charge of Esler Johnson, who for more than a year has been directing the research and experimentation behind the new products. He was engaged in similar work for another large oil company for a period of several years.

The new products include fly spray, dry cleaner, lighting fluid, furniture polish, polishing wax, liquid wax, metal polish, automobile polish and a utility lubricant. They will be marketed in special containers bearing a wedge-shaped Associated label in the red, green and cream color combination.

OBTAIN COMPARABLE RESULTS IN GASOLINE ANTIKNOCK TESTING

By Neil MacCoull
Automotive Engineer, The Texas Company*

Now that it has become standard to rate knock values in terms of a blend of iso-octane and normal heptane—all knock measurements have become essentially methods of matching some fuel either directly or indirectly, against a blend of these two chemicals. It was the object of the work described here to determine if there was any difference in matching by bouncing pin or "throttle audibility" on the same engine.

The first experiments were carried out on the Series 30 Ethyl engine and consisted in determining by cut and try methods, the amount of benzol[1] which had to be added to a commercial motor gasoline to equal the antiknock value of 1, 2, 3 and 4 cc. of lead in the same gasoline. The so-called matching method was used, as is standard procedure for the Ethyl engine. Readings were taken with the usual bouncing pin and knock-meter. The data secured are given in Table 1 for the bouncing pin and throttle audibility method on the same engine. Slight mechanical changes had to be made so that the audibility reading could be taken on this engine. A micrometer adjustment was provided for the throttle, and the same manometer was used for observing the intake vacuum as is standard for our other "C.F.R."[2] engines.

TABLE 1

Lead content cc./gal.	1	2	3	4
Benzol equivalent by				
(a) audibility ...	16%	31%	38%	46%
(b) bouncing pin.	13%	30%	38%	44%

The agreement between these two methods is quite satisfactory, the average difference being only 1½ per cent of benzol.

Another study was made to find the relative precision of these two methods of knock testing. In this work several test samples containing various quantities of lead in a given reference gasoline were repeatedly supplied to routine operators, who were not informed of the amount of lead in them. It was their function to match the samples against a series made up of the same reference gasoline, with known quantities of lead in steps advancing by increments of 0.2 cc. of lead. Table 2 shows the results obtained with the bouncing pin, and Table 3, the results by throttle audibility. In each table are shown the average of all readings on each group of samples, and the mean variation from that average. The bouncing pin was used on the Series 30 Ethyl engine, and the audibility method was carried out on the L-head C.F.R. engine, since previous data indicated that these two engines give practically the same results. Skill of operator was cancelled by having each operator take readings on both engines.

It is seen that there is no appreciable preference for one method over the other in regard to accuracy.

Table 4 shows corresponding data for 30 and 32 per cent of benzol blended in the same reference gasoline. These samples were included for the double purpose of checking the finding of Table 1 which showed that the benzol equivalent of lead is not appreciably affected by the method used, and also to see if the accuracy of matching benzol blends by audibility is as good as when using lead only. This latter step was taken because the sound of a benzol knock is noticeably different from a lead knock.

It will be seen that there is but little to choose in regard to the precision of these two methods. The fact that the bouncing pin showed slightly more lead to match a given percentage of benzol (Table 4), or slightly less benzol to match a given quantity of lead (Table 1), may be due to the fact that the proportion of spent exhaust gases mixed with the combustible charge was less.

*Paper presented at annual meeting of the Society of Automotive Engineers.

[1]A grade known to the trade as "purified."

[2]C.F.R. is an abbreviation for Co-operative Fuel Research Committee.

TABLE 2—THROTTLE AUDIBILITY METHOD—C.F.R. ENGINE

Lead actually added	Lead found—Engine operator										Average	Mean variation
	A*	B*	B*	A*	B	C	B	C	B	B		
1.5	1.4	1.4	1.6	1.4	1.5	1.4	1.6	1.5	1.5	1.6	1.49	0.07
1.8	1.6	1.7	1.7	1.7	1.8	1.8	1.8	1.8	2.0	1.9	1.78	0.05
2.0	1.9	2.0	1.8	1.9	2.1	1.8	2.0	2.0	2.1	2.1	1.97	0.096
											Average	0.08

*These four readings were taken with a single float carburetor. Matching was thus indirect, and had to be done by readings of manifold vacuum.

TABLE 3—BOUNCING PIN METHOD—ETHYL ENGINE

Lead actually added	Lead found—Engine operator										Average	Mean variation
	A	B	B	A	C	B	B	B				
1.5	1.7	1.5	1.4	1.6	1.5	1.5	1.5	1.5	1.8	1.5	1.55	0.09
1.8	1.8	1.6	1.8	1.8	1.8	1.8	1.8	2.0	1.8	1.8	1.80	0.04
2.0	2.0	2.2	1.8	2.0	2.0	2.0	2.0	1.8	2.0	2.0	1.98	0.07
											Average	0.07

TABLE 4—BENZOL BLENDS MATCHED VS. LEAD THROTTLE AUDIBILITY AND BOUNCING PIN METHODS

Method—	Lead equivalent—Engine operator										Average	Mean variation
	B	A	C	C	C	B	B	B	B	B		
Audibility: (C.F.R. engine)												
30% benzol ..	1.7	1.9	1.8	1.7	1.9	1.8	2.0	1.8	1.9	2.0	1.85	0.09
32% benzol ..	1.8	2.0	2.0	2.0	2.1	2.3	2.1	2.0	2.1	2.2	2.05	0.09
	B	A	A	C	C	B	B	B	B	B		
Bouncing pin: (Ethyl engine)												
30% benzol ..	2.0	2.2	2.0	2.3	2.0	1.9	1.9	2.0	2.3	2.3	2.07	0.13
32% benzol ..	2.2	2.0	2.3	2.0	2.2	2.1	2.2	2.2	2.2	2.0	2.14	0.09

REDUCE TRINIDAD PRICES

NEW YORK, Jan. 31.—Marketing companies operating in Trinidad have reduced the price of gasoline 4 cents from 40 to 36 cents per gallon, including the government excise duty of 12 cents per gallon. Immediately following the price cut, however, the government excise duty was increased to 16 cents, restoring the price of gasoline to the consumer to 40 cents per gallon.

There is a price maintenance agreement among the major companies operating in Trinidad regulating gasoline prices.

IMPORTS AND EXPORTS OF CRUDE AND REFINED

By Charles E. Kern
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Jan. 31.—During the month of December and for the entire year 1930 there was a decline in both exports and imports of petroleum and products, compared with 1929, except in the case of advanced and refined oils, topped oils and gasoline.

Imports of crude petroleum imported during December, 1929, aggregated 5,886,504 bbls., valued at $6,750,616, decreasing to 4,727,079 bbls. valued at $4,796,755 in December, 1930.

During the 12 months of 1929 the imports of crude were 78,432,572 bbls. valued at $79,943,429, decreasing to 62,129,419 bbls. valued at $62,129,419 in 1930.

Imports of crude decreased from 12,662,419 bbls. to 10,093,333 bbls. in the case of Mexico, from 16,222,450 bbls. to 9,780,217 bbls. from the Netherland West Indies; from 34,431,088 bbls. to 25,299,349 bbls. from Venezuela; and from 1,454,346 bbls. to 1,281,010 bbls. in the case of Peru. In the case of Colombia alone was there an increase, the amount being from 12,620,000 bbls. to 14,204,000 bbls.

Imports of advanced and refined oils increased from 29,632,365 bbls. in 1929 to 43,380,000 bbls. in 1930.

Imports of topped oils, including fuel oil, increased from 20,545,498 bbls. to 26,080,383 bbls.

Gasoline, naphtha and other refined light products imported in December amounted to 715,829 bbls., increasing to 963,924 bbls. in December, 1930. Most all of this product was from the Netherland West Indies, the quantity in 1929 being 637,071 bbls., and 871,433 bbls. in 1930.

The total imports of gasoline, naphtha and other light products in 1929 amounted to 7,494,107 bbls., increasing to 15,472,685 bbls. in the 12 months of 1930.

Importation of paraffin wax decreased from 40,859,824 pounds in 1929 to 30,289,505 pounds in 1930.

The value of the total exports of petroleum and products in December, 1929, was $49,216,722, decreasing to $30,006,415 in December, 1930.

The total value of exports of petroleum and products in the 12 months of 1929 was $561,191,162 decreasing to $494,243,173 in the 12 months of 1930.

In December, 1929, crude petroleum exported amounted to 2,891,101 bbls., decreasing to 1,338,667 bbls. in December, 1930.

The total exports of crude petroleum

(Continued on Page 132)

NEW PLANT IN KENTUCKY

HORSE CAVE, Ky., Feb. 2.—Excavation work started Thursday on the first oil refinery to be established in Horse Cave to handle a portion of the crude oil purchased in the local field. The company which is building the refinery is the Simrall Refining Corp. The capacity at the beginning of operations will be from 500 to 1,000 bbls. and will enlarge as business warrants to a plant of possibly 2,000 bbls. capacity. Pipe lines from the Legrande Field in Hart and adjoining counties to the plant will be laid and work on same will start immediately.

It is expected that the new refinery will be in operation sometime in the latter part of February. Plans are also under way for this company to build lines from the field to the railroad for the purpose of selling crude oil on the market also.

The refinery is being constructed on the Lebus 10-acre tract south of the Burley Tobacco warehouse on the main line of the Louisville & Nashville Railroad.

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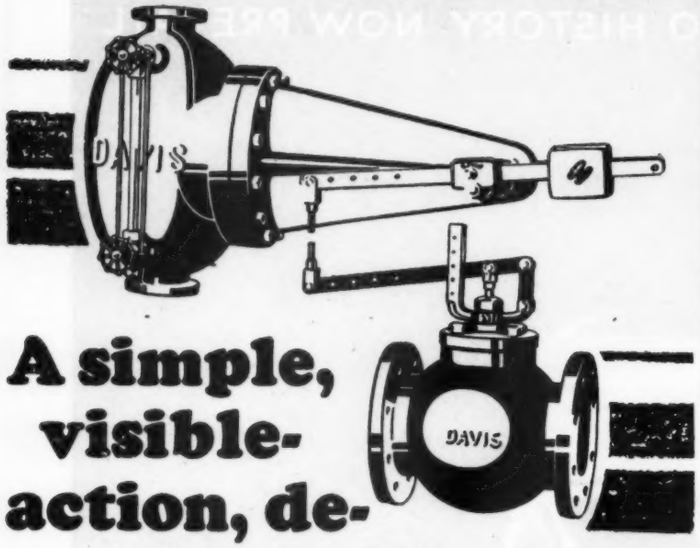

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EARLY DEVELOPMENTS IN HYDROGENATION

(Continued from Page 30)

drogenation of some simple organic compounds Ipatyev and Klyukvin, Orlov and later Kling and Florentin were able to establish some general rules which can be regarded as one of the first more or less successful attempts, to penetrate into the mechanism of this extremely complicated reaction applied to even such complicated mixtures as coal. The above authors arrive at the conclusion that each substance has its own definite temperature limits at which the inner molecular bonds start to desintegrate and at which the molecule tends to dissociate. This dissociation causes an impulse towards a final decomposition of the molecules. Through the breaking up of the original molecule and the splitting off of the side chains, small fragments are produced, i.e., a phenomenon usually called cracking process, takes place. The temperature limits of the dissociation of the structure of the substance usually correspond to the temperature at which the hydrogenation of the given compound takes place. Therefore, hydrogen will react at elevated temperatures with the fragments appearing at the moment of dissociation.

For quite a number of compounds the temperature limits at which the dissociation of the molecules takes place lies very high and frequently above the temperature at which the individual existence of the newly formed compounds is possible. To lower this temperature catalysts are used, whereby the addition of hydrogen is effected at lower temperatures.

Here, consequently the same principle which is the basis of earlier work on catalytic hydrogenation carried out by Ipatyev is applied. It should also be noted that different substances do not have the same resistance against hydrogen at elevated pressures, different temperatures for this dissociation being required. Kling and Florentin are of the opinion that by applying the hydrogenation method at elevated temperatures and pressures, it is possible to judge to a certain extent the chemical structure of a given compound based on the determination of the most favorable temperature for the performance of the process and of course on the results of investigation of the reaction products.

The fact that compounds of a cyclic character are obtained in the course of the hydrogenation of coal is, according to F. Fischer, one more proof in favor of the lignin theory of coal origin and its aromatic structure. In their investigation on the action of hydrogen at elevated temperatures and pressures on some individual compounds (mainly hydrocarbons of coal tar) Spikler and Zerbe arrived at considerably different conclusions. Whereas Kling and Florentin point out the possibility of hydrogenating complete molecules without any particular emphasis, directing all their attention toward the hydrogenation at the moment of dissociation, Spilker and Zerbe by their thorough experimentation arrive at the conclusion that hydrogenation also takes place without the introduction of catalysts from the outside, whereby a complete preservation of the hydrocarbon skeleton of the original compound is observed. They further point out that the opinion of authors who recognize only a light cracking which is accompanied by hydrogenation in the process of liquefaction of coal, show a one-sidedness and incompleteness.

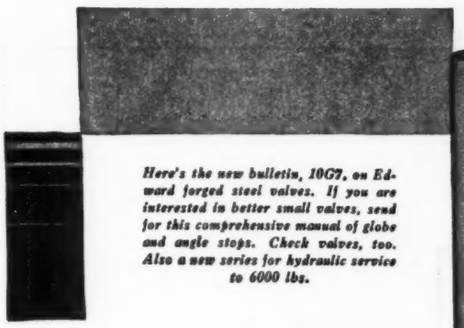
To settle all disagreements and hoping to throw more light on this unsettled question, an investigation of hydrogenation processes at elevated temperatures and pressures was started in the Laboratory of the Petrograd Academy of Science in 1924. Compounds of various classes were included in the investigation. Only such a broad approach to the problem could assure promising results. Because, as shown above, even the most elaborate investigation on the transformation of a single or a few compounds cannot give conclusions of any value with regard to the process itself as well as of its application to such a complicated complex like coal.

The selection of compounds taken for this investigation is not a casual one. If so far we do not have a certain amount of accurate information on the chemical structure of substances forming coal, some indication of its structure is still obtained when investigating products obtained by the action of the lowest heat treatment of coal, that is, primary tar. While on the other hand regardless of the severe action to which coal is subjected in the course of the ordinary cokefication procedure, and the complicated and varying composition of the coal tar, all the components found in the latter bear the mark of the original structure of their origin, that is, coal. Therefore it is quite natural that our attention was directed first toward cyclic compounds. A considerable amount of phenols present in primary tar induced us to try the possible transformations of this class of compounds also. The possibility of tautomeric transformations of phenols into ketones (and vice versa) induced us to make some experiments with the latter, while the presence of nitric compounds in the products of cokefication of coal caused us to include the group of some nitrogen containing compounds of a cyclic character in our investigation. Considering the fact that experiments carried out with all the enumerated groups of compounds do not entitle us to express a categorical opinion on the chemistry of the liquefaction process of coal, they do explain to a sufficient extent the mechanism of the process of improving such products as heavy oils, etc., by means of hydrogenation. We also hoped to draw some conclusions on the chemistry of cracking of heavy crude oils under hydrogen pressure when starting the special investigations. As is the case with coal, the composition of crude oil is known to a quite insignificant extent, while clear indications of the presence of some hydrocarbon classes are available. For this reason an investigation on the transformation of components of the hydrocarbon portion of primary tar promises to throw some light on similar transformations of the corresponding crude oil fractions, due to the fact that all investigations show a great similarity among themselves in these two products, if not quantitatively so at least qualitatively.

Results of Investigations

There is still one point to which attention should be drawn. As known, the technical method of treating coal by hydrogenation is highly developed in Germany. The existing great patent literature protects various methods or parts of the appparatus, although, as mentioned before, the scientific explanation of all these methods is still very inadequate. For this particular reason it appeared very desirable to check some of the basic patents — to disclose the theoretical foundation on which the various methods are based.

The complete layout of the investigation indicated here should be looked upon as a preliminary plan for the understanding (and therefore also for a rational accomplishment) of the main problem, the liquefaction of coal. Investigations started with Moscow coal and tar, which are not yet concluded, although the preliminary studies of the individual components made such a study quite easy. It is possible to produce up to 35 per cent of a crude oil liquid by a direct hydrogenation of Bobrikov and Pobedinskii (Moscow district) coal in rotating autoclaves. The conversion is complete upon the addition of a diluting medium—in our experiments, by the addition of a certain brown coal tar fraction. Of course this does not mean that the coal is completely converted into a liquid. A considerable amount of water is formed during the reaction, a part of the carbon being also converted into gaseous products. Therefore, the yield of artificial crude oil product will hardly be in excess of 70 per cent and yields indicating a higher figure should be considered as conscious exaggerations. Semicoke can be converted into liquid products in a



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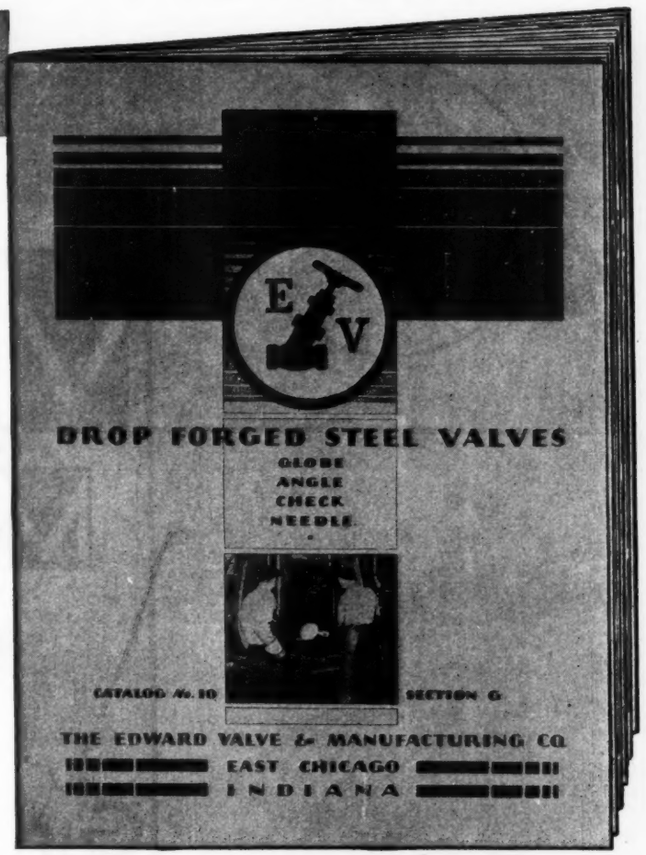

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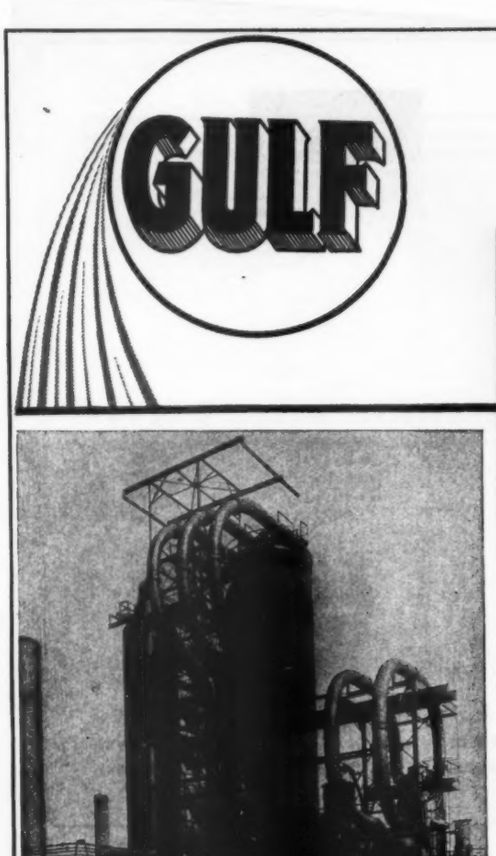

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manner similar to coke. These artificial varieties of crude oil are composed of a mixture of hydrocarbons with oxygen containing substances, mainly phenols. The conversion of this mixture into gasoline is carried out in a separate operation and in the presence of catalysts. The latter are absolutely essential for the conversion of phenols into hydrocarbons.

The procedure of converting the first hydrogenation product into gasoline is quite identical with the conversion of brown coal tar. This is quite clear when considering the great similarity in the chemical composition of these two products.

It can be said that the Moscow coal constitutes quite a suitable material for hydrogenation, providing it has a proper preliminary mechanical concentration. The use of tar, on the other hand, is much simpler and its hydrogenation is distinguished but little from that of the corresponding heavy crude oil fuel oil. The latter investigation is being carried out at the present time in the author's chemical laboratories.

Method of Operation

One of the most up-to-date plants for coal hydrogenation is the plant for making synthetic gasoline, the Leunawerke near Merseburg (Germany). The work in such installations with which the author is personally acquainted will serve as a start for the analysis of the process in general, as well as of some of its typical details. The brown coal mined on the surface in the vicinity of Bitterfeld (Germany) contains a considerable amount of moisture which in part is removed by drying.

The coal is dried and disintegrated to 1½-2 mm. in size and passed into mills in which it is ground to a paste together with heavy oil, the latter originating from the process. This oil is often replaced by crude oil residues or by heavy brown coal tar fractions which are produced in large quantities in the Ribeck'sche Montanwerke. The paste so obtained is pumped by high-pressure pumps into the first battery of vertical cylindrical high-pressure vessels where the first conversion of coal into a viscous crude oil like liquid is made under 200 atmospheres hydrogen pressure and a temperature of about 450° C. The charging paste is agitated by a suitable equipment to assure the closest possible contact of the reacting mass with hydrogen. The oil is separated by distillation from coal and semicoke. The predominating medium oil fractions are passed further into a new battery of identical vessels where the conversion into gasoline is carried out in the presence of catalysts. Gasoline is separated from the heavier fractions in Raschig bubble towers. The higher boiling products are recycled, while the heavy oil separated from semicoke is used for preparing the paste by mixing it with coal.

According to Doctor Krauch more effort and energy have been sent to overcome the difficulties encountered in the complete removal of oil from the carbon-like residues, than in developing any other part of the process. These difficulties are insignificant in comparison with other most difficult phases. The above plant manufactures only gasoline at the present time, for which there is a steady demand and the disposal of which is assured. By slightly changing the conditions of the process other fractions can be obtained if desired.

The advantages of such an artificial crude oil as compared with the natural crude consist, according to the opinion of some experts, in the possibility of regulating the process, so that products required at a given moment by the market can be obtained, in this way coordinating the supply and demand. Crude oil, on the other hand, by simple distillation can produce only the amount of gasoline it contains.

Thus the first action to which coal is subjected when introduced in the process is the action of temperature at about 450° C. This is just the temperature where the bituminous part of the coal separates from the rest, leaving the latter in the form of a semicoke, the bitumens being subjected to a comparatively small change produce the material usually called primary tar. In the case of the brown coal under investigation, this primary tar has a clearly expressed paraffinic character, which is understood when considering the identical structure of the main body of brown coal with the bitumen called montan wax, which is composed mainly of higher molecular hydrocarbons, alcohols and the corresponding esters of a saturated nature. It is clear that on further reactions in the presence of hydrogen at elevated temperatures, we shall be dealing, generally speaking, with the cracking of paraffin compounds, which will lead to products closely resembling those obtained when subjecting paraffin to a similar treatment, as was carefully investigated by Waterman.

That the berginization of compounds similar to montan wax actually produces gasoline composed mainly of methane series in its lower fractions is shown by experiments by N. Orlov. He berginized sapropel from "balkhashit" the chemical structure of which has in the main a distinctly fatty character. Other fatty and wax-like compounds behave quite similarly, as was shown by the above author.

Brown coal bitumens contain, besides aliphatic compounds, a certain percentage of tars. They are very similar not only to the mined resins, amber, but also to resins of the conifers and therefore are close to rosins. Rosin as well as amber produces liquid products on berginization which are mainly of the polymethylene type. This is easily explained by the cyclic structure of the original material.

Thus considering the hydrogenation of brown coal as consisting of two separate processes, namely low temperature carbonization followed by hydrogenation of the products formed, the understanding of the process with regard to the bituminous part does not present any difficulties, its product being gasoline which contains polymethylenes together with methane hydrocarbons.

Whereas the extraction product from brown coals—the so-called crude montan wax, is composed, as shown above, of the actual wax and tar, the product of low temperature carbonization of brown coal. The tar also contains phenols, the origin of which can evidently be explained by the changing of the lignin and humic part of coal. The behavior of phenols at elevated temperature in the presence of hydrogen is quite peculiar and deserves a more thorough investigation. Quite a number of experiments carried out in the author's laboratory have proved that the phenols as such are fairly indifferent to elevated temperature. The picture is but slightly changed on heating the phenols in the presence of hydrogen. For the most part they are not changed, retaining the hydroxyl group quite tenaciously. The main change effected is the simplification of their general structure—the removal of side chains, etc.

Use of Catalyst

A different result is obtained on carrying out the reaction in the presence of any catalyst which lowers the dissociation temperature. In this case an energetic reduction of the phenols is observed indicated by the formation of corresponding aromatic hydrocarbons from these phenols. This process of substitution of hydroxyl groups by hydrogen should under no circumstance be considered identical with the hydrogenation process carried out with active catalysts, such as nickel, etc. In the latter case we have the actual hydrogenation of the benzene ring, whereby the hydroxyl groups remain intact.

The reduction dealt with in this study relates only to the latter case and requires the presence of poison resistant catalysts for its realization. Alumina is a catalyst which deserves special attention in this case and which has proved to be universally adaptable in similar cases, particularly when applied in mixtures with some metal oxides. In this case the reduction of phenols is carried out in the same way as noted by Professor Stadnikov in his experiments on the reduction of phenols over metallized carbon. His

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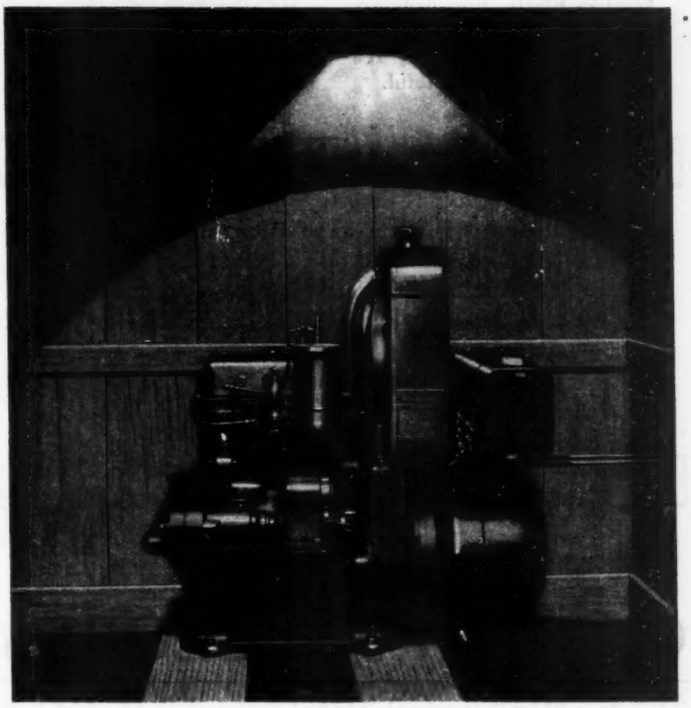

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experiments, it is true, were carried out at atmospheric pressure, but at a higher temperature. Exactly the same results are obtained by Fischer, who used an iron tin-lined or sulphurized tube. It should be noted that reducing catalysts are not sensitive towards contact poisons, particularly sulphur, in experiments carried out under pressure and at high temperature.

One French patent relates to the application of a sodium sulphide catalyst in the reaction, while numerous I.G. patents cover the application of metal sulphides.

Before reviewing the chemical processes which take place in the residual body of coal—the semicoke, after the bitumens have been eliminated from it, attention should be paid to the following circumstances. In some of the latest patents issued to the I.G., a method of obtaining a liquid fuel, based simply on liquefaction of coal under elevated pressures at temperatures amounting to about 400° C. in suitable high boiling solvents, is described. Thus, by treating brown coal under the above conditions with phenol, heavy oil, tetralin, etc., about 60 per cent of the coal can be converted into the liquid state. Evidently in this case some processes of depolymerization take place, small molecules being formed similar to those observed by Fischer when extracting wood under pressure. Twenty to twenty-five per cent of an extract were obtained in a number of experiments, whereas one extraction under ordinary conditions yielded only one-half per cent. There can not be any doubt that this is not a simple extraction, most probably a depolymerization of the kind mentioned above takes place.

High Molecular Solvent

The presence of a high molecular solvent used for mixing the coal into a paste, the high temperature and the pressure are exactly the conditions required for the depolymerization of coal constituents accompanied by the formation of liquid products. Of course, it is quite possible that semicoke formation takes places simultaneously with the depolymerization and dissolving process.

Experiments carried out by Fischer as well as experimentsmade in the author's laboratory with Moscow coal showed that semicoke can be subjected to hydrogenation to the same extent as coal containing bitumen, particularly when adding oil. As a result of the hydrogenation of semicoke, a brownish tar-like liquid is obtained which resembles primary tar in many respects and which contains a considerable amount of phenols (up to 20-25 per cent) together with hydrocarbons, the nature of which is as yet not definitely known. Indications only are available that they belong to condensed aromatic varieties, possibly partly hydrogenated.

At any rate the first phase of the technical hydrogenation of coal produces a liquid mixture of high molecular hydrocarbons with phenols. This liquid is of considerable value as Diesel fuel. However, it contains but little light fractions which are the main requirement of the market. Only subsequent treatment with hydrogen converts the heavy oil into gasoline.

After all that has been said about the conversion of phenols, the necessity of subdividing the process into two phases of consecutive hydrogenation becomes evident. Phenols are converted into hydrocarbons only in the presence of catalysts.

Of course, these catalysts could be added at the beginning of the process to the initial mass of coal, but in the first place their activity would be considerably decreased on account of occlusion by the remaining coal which has not taken part in the reaction as well as by ash elements; and, second, on removing the said residues and the coal from the reaction vessel the catalyst would be lost completely. While by subdividing the process into two phases a crude oil is obtained in the first phase which is then sent for further treatment over the catalyst, which by this method is not exposed to any soiling by solid residues or any other mechanical admixtures.

Thus the catalyst retains its activity for a considerable time and can be removed from the reaction vessel and regenerated in the case of deterioration of its activity.

Referring to the hydrocarbon portion of the first product obtained through the action of hydrogen on coal, the conversion of high molecular hydrocarbons into those of low molecular weight is fairly simple under the process conditions, although it is not always in the direction desired. Quite frequently the disintegration of the large molecule goes too far, yielding only gaseous products of a saturated nature, which naturally is undesirable. The introduction of specific catalysts here also decreases the dissociation temperature to a limit where available hydrocarbons formed are not subjected to a further change in the direction of gas formation.

All these assumptions mentioned before related directly to the process as carried out with brown coal. It would not be unreasonable to assume that the berginization of hard coal is subjected to the same laws. It should be noted, however, that not all physical components of coal are accessible to the action of hydrogen at elevated temperatures and pressures to the same extent. As shown by experiments of I. Graham, fusain is passive here as well as in coke formation and therefore appears to be a dead weight decreasing the yield of liquid products. Considerable progress along the line of the mechanical separation of coal will certainly make it possible to dispose of this dead weight in the future.

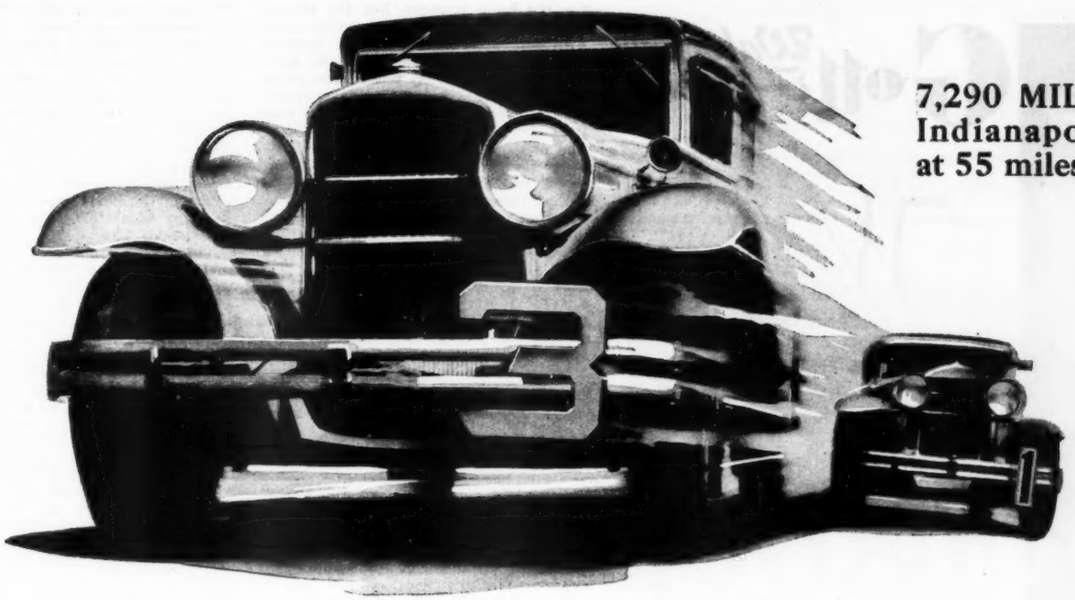
One more result of the light hydrogenation of hard coal is worth mentioning. Whereas prolonged hydrogenation causes almost complete conversion of the coal mass into liquid products, a mild and short action of hydrogen under berginization conditions restores the ability of coal to coke; an ability which was either lost or was not present at all originally—the ability of producing a dense, good coke in experimental coking. According to Landner, who first observed this phenomenon, there is a possibility of converting anthracite into good coking coal by this method. Some not yet published reports by N. Orlov assume that an actual synthesis of bitumens occurs here from the humic part of the coal, because artificially prepared coal of a purely humic nature acquires the properties of swelling and baking into a dense mass of coke after a short heat treatment with hydrogen.

Our knowledge regarding the chemistry of the coal hydrogenating processes due to the insufficient knowledge of the structure of the main body of the coal mass, as shown above, would have been very incomplete, if one were not allowed to express some assumptions based on analogy derived from the more simple cases of decomposition of some individual compounds subjected to hydrogen pressure.

The material obtained in this direction will be dealt with by N. A. Orlov separately in an independent report. In this connection it should be said that even if all the work done so far in the above direction does not entitle one to talk with an absolute assurance on all those complicated reactions which take place in the liquefaction of coal by hydrogenation, that nevertheless the above investigations do help to clear up the chemistry of hydrogenation reactions of such products of the coke-benzene industry as pitch, heavy oils, etc.

Character of Products

An accurate prediction of the chemical character of the products obtained on berginization, the yield of various more or less valuable fractions, the calculation of hydrogen required, the accomplishment of an energy balance is only possible when based on experimental research carried out with pure compounds and which has been checked against results obtained experimentally with technical mixtures. A period of theoretical investigation has followed a boom of empirical experiments on the improvements of various fuels, and it can be seen that recently a number of research workers in this field (Hoffmann and Lang, Tate, Hugel and others) are trying to explain the foundation of this process using the same methods as have been used lately in the author's laboratory in the Academy of Science. A thorough investigation of the above problem is valuable not only



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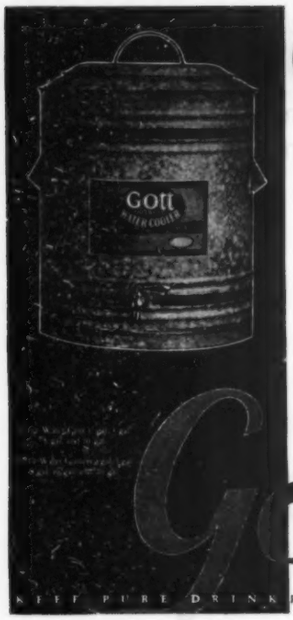

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for the basic problem, but the thermal dissociation of organic compounds under hydrogen pressure is a very valuable method in many cases where the direction in which various pyrogenetic transformations take place is investigated. In the case of hydrogenation the reactions are not accompanied by a formation of secondary products such as coke, heavy tars, etc., which are always formed in prolysis at elevated temperatures.

The phenomenon of a possible isomerization plays a definite role here, but the mechanism of such transformations previously investigated by the author could not obscure the whole picture. The most frequently encountered (as can be derived from the latest experiments by Hoffmann and Lang) is the isomerization of the six membered poly-methylene cycles into five membered cycles.

It should be noted that the development of the synthetic crude oil industry has some influence on the theory relating to the origin of crude oil in nature. High pressures which are present in the technical preparation of synthetic crudes are also present in oil bearing strata, where the pressure can amount to 100 atmospheres and even more as proved by experiments.

The temperature which existed in the strata during the formation of crude oil was apparently higher than that which exists today. However it probably did not reach the temperature at which the crude oil synthesis is carried out at present. These circumstances are not in disagreement with the general conclusion of Professor Wainberg, because the experiments conducted in the laboratory of the German Dye Trust proved that synthetic crude oil can also be obtained at low temperatures, but the reaction of its formation is performed considerably slower in this case.

Having at its disposal hundreds of milleniums nature was able to form a sufficient amount of crude oil even at that low temperature, however the possibility of crude being formed at the present time is not excluded. Magnetic fields and electricity, as indicated by I. G. chemists, accelerate the process of crude oil formation and since these phenomena are encountered in nature they could have stimulated the processes of crude oil formation. Wainberg assumes that coal as well as crude oil has the same vegetable origin. Such a conclusion really appears to contradict Engler's theory and assumes the existence of some processes in which great amounts of hydrogen are formed. If this last point is solved satisfactorily, Engler's theory will only gain, because fats are easily converted into crude oil-like liquids under berginization conditions as has been proved experimentally in the author's laboratory.

To make any positive predictions on the possibilities relating to the manufacture of synthetic crude oil is very difficult. The analysis becomes still more complicated by the fact that the present day prices for crude oil products are on an abnormally low level. It is also impossible to foresee the improvements which will be reached in the treatment of brown coal in the new plants of the I.G. and the Gesellschaft fur Teerverwertung.

According to the communications of German experts 1 metric ton of coal can produce up to 650-750 kilograms of liquid fuel products. This figure should be considered as slightly exaggerated, because not all the carbon present in coal is used to form liquid hydrocarbons, part of it is split up in the form of gases which have only limited value.

It is important to point out that the success of the I.G. in the new field of hydrogenation is due to a considerable extent to a close co-operation in two lines of production which are apparently quite different. This relates to the production of crude oil from coal on one hand and to the production of synthetic nitrogen fertilizers on the other.

These two lines of manufacture have many points in common. Both work with gases at elevated temperatures and pressures using catalysts. Both consume immense quantities of hydrogen, and therefore this hydrogen must be of a very low cost. And finally both processes require for their apparatus special kinds of steel, the manufacture of which was preceded by numerous experiments. Therefore it is clear that the 15 years of experience of the engineering staff of the I.G. in the technique of high pressures is of the greatest advantage to this company in the manufacture of synthetic crude.

Before an agreement was reached in 1925 between the Erdol und Kohlenverwertung and the I. G. Farbenindustrie, A.G., the first named company was subsidizing the experiments of Bergius, spending 12,000,000 marks on laboratory experiments alone.

The results reached in the process of coal liquefaction as well as the status of our knowledge of the nature of the process itself are far from being ideal. The results obtained in this direction give us the assurance that this new line of industry stands on a firm basis, requiring for its further successful development only more money and the continuance of scientific investigations as well as experiments on a manufacturing scale.

CODE COMMITTEEMEN ARE URGED TO ACTION

(Continued from Page 124)

initiative, at once determining to eliminate its own unsound practices and get back to a safe, sound, economic policy and stay there. Guidance to this end may be obtained by study of the letter and spirit of the Code of Ethics and by careful checking of all other known unsound and wasteful practices.

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IMPORTS AND EXPORTS OF CRUDE AND REFINED

(Continued from Page 124)

in 1929 amounted to 26,394,349 bbls., valued at $37,788,683, decreasing to 23,704,162 bbls. valued at $32,153,377 in the 12 months of 1930.

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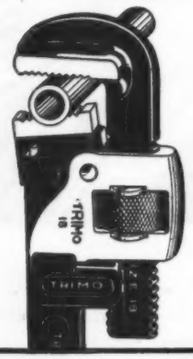

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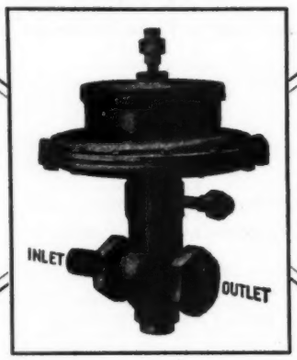

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CONSERVATION PROGRAM BY IMPERIAL IN PERU

NEW YORK, Feb. 2.—Imperial Oil Co., Ltd., Canadian affiliate of Standard Oil Co. (New Jersey) has put into effect a program of intensive conservation in its operations in Peru and has effected substantial savings in operations as a result of this policy, the company reports.

"The present and future advantages of unit operation and proration are not theoretical. They have been proved by practice in some of the United States' fields, but perhaps the outstanding example of the advantages of these schemes is to be found in the Republic of Peru where are situated the oil fields operated by the International Petroleum Co., Ltd., Imperial's principal subsidiary.

"These fields have never been exploited competitively, as large tracts of land have always been in the hands of one company. This made possible their operation on an economical and efficient basis, the two principal results of which are that long life of the fields is assured and that every cubic foot of gas and every barrel of oil brought to the surface is usefully employed. Each field is operated as a unit, and only such drilling is done as is needed to secure the desired production or to test new structures. Production from the wells is prorated for the greatest advantage to the producers.

"It is several years now since the directors of International Petroleum, recognizing the necessity for conservation in the oil industry, sent specially trained engineers into the field and assigned to them the broad problem of eliminating waste. Highly competitive conditions in the oil producing business gave impetus to this effort and the engineers were materially assisted in their work by the nature of the structures in the Peruvian fields.

"These structures are badly block faulted, with the result that the oil sands are enclosed in a series of impervious partitions constituted by the walls of the faulted formations. This permits the use of modern producing methods in the limited areas enclosed by these structural faults.

"One of the first steps in the plan for conservation in the Peruvian fields was the construction of casinghead gasoline plants and of residue gas distribution systems. Casinghead gasoline plants permitted the production of natural gasoline that formerly had been wasted as vapor in the air. The residue gas distribution systems made it possible to substitute gas for crude oil as fuel for field and refinery operations. How well the plans have worked out is indicated by the fact that there is now a saving of more than 80,000 gallons of natural gasoline and 4,000 bbls. of crude oil daily.

"Recently the residue gas distribution systems have been elaborated, and the surplus of gas which remains after fuel requirements have been accommodated is now returned to the oil sands by means of compressors. Part of this gas remains stored in the sands to be withdrawn later as needed. Part of it returns to the surface through operating wells, bringing with it further supplies of crude oil. During 1929, 4,000,000,000 feet of gas was used for repressuring and some 2,000,000 bbls. of crude oil was produced as a result.

"In common with all oil fields that produce light crudes, the International fields in Peru have a very serious evaporation problem. The lighter ends of the crude oil readily vaporize and are lost unless particular care and special equipment are used in handling the crude. To eliminate this waste, vacuum is applied to the oil while the gas is being separated from it and gas tight field storage equipment has been installed and floating roof tanks placed at allotted points. Savings effected by the resulting elimination of evaporation losses amount to more than 50,000 bbls. crude oil each year."

	Barrels	
Saved by:	Per day	Per year
Eliminating evaporation ..	137	50,000
Substitution gas for fuel oil	4,000	1,460,000
Repressuring oil sands	5,500	2,000,000
Reclaiming natural gasoline	1,900	700,000
Total savings:		
Crude oil	5,637	2,050,000
Fuel oil	4,000	1,460,000
Natural gasoline	1,900	700,000

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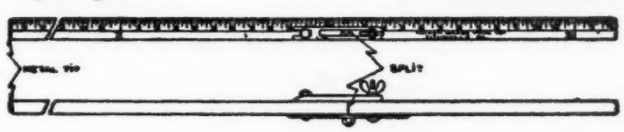

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Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS
Pipe Line Report for Month of November

RUNS

	Month bbls.	Daily av. bbls.
Prairie P. L. Co.*	2,297,540	76,598
Gulf P. L. Co.	1,216,330	40,544
Texas P. L. Co.	638,342	21,298
Magnolia P. L. Co.	1,297,264	43,242
Empire P. L. Co.	1,441,080	48,036
Cosden P. L. Co.	676,137	22,538
Stanolind P. L. Co.*	2,970,000	99,000
Oklahoma P. L. Co.	2,308,496	76,950
Other lines	5,490,000	183,000
Total November	18,236,190	611,206
Total October	20,203,304	651,720
Difference	1,867,114	40,514

SHIPMENTS

Prairie P. L. Co.	2,651,866	88,396
Gulf P. L. Co.	1,152,592	38,420
Texas P. L. Co.	1,341,452	44,715
Magnolia P. L. Co.	1,224,581	40,819
Empire P. L. Co.	1,269,180	42,306
Cosden P. L. Co.	746,075	24,869
Stanolind P. L. Co.	3,074,429	102,481
Oklahoma P. L. Co.	2,201,217	73,374
Other lines	5,550,000	185,000
Total November	19,211,392	640,356
Total October	22,032,627	710,729
Difference	2,821,235	70,349

STOCKS

Prairie O. & G. Co.	38,073,000
Gulf P. L.-Gypsy Oil Co.	7,965,766
The Texas Company	3,479,044
Magnolia Petroleum Co.	5,757,775
Empire P. L. Co.	4,913,000
Mid-Continent Pet. Corp.	3,690,105
Stanolind Crude Oil Pur. Co.	19,493,000
Oklahoma P. L. Co.	3,395,457
Carter Oil Co.	9,885,555
Other lines	24,124,000
Total November	120,275,702
Total October	120,176,022
Difference	99,679

*Estimated. Prairie and Stanolind shipments include Texas crude oil.

EASTERN PIPE LINE REPORT FOR DECEMBER

Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky, Illinois, Indiana and Michigan for November and December:

	Nov.,'30	Dec.,'30
Nat. Transit	104,496.10	110,146.31
S.W. Pa. P. L.	71,488.99	72,041.68
Eureka P. L.	272,972.79	289,000.11
Buckeye P. L. (Macksburg)	293,767.83	325,469.03
Buckeye P. L. (Cleveland)	9,244.34	11,757.62
Buckeye P. L. (Lima, etc.)	72,798.02	82,364.67
Indiana P. L.	3,171.88	3,342.31
Cumberland P. L.	157,587.04	178,692.00
N. Y. Transit	28,186.00	25,548.26
Tide Water P. L.	22,611.53	27,349.30
Pure Oil	190,625.17	204,537.02
Sioil Oil Ref.	27,202.39	14,378.02
Bradford Tran.	315,826.43	319,175.02
East Gulf Oil		7,156.40
Total	1,569,979.51	1,673,984.81
Daily average	52,332.65	53,999.19

Note—Indian Refining Co. had other receipts of 265,208.78 bbls.

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for November and December:

	Nov., '30	Dec., '30
Nat. Transit	402,823.38	418,614.12
S.W. Pa. P. L.	243,629.09	243,352.43
Eureka P. L.	192,900.15	268,939.44
Buckeye P. L. (Macksburg)	246,434.15	247,581.49
Buckeye P. L. (Cleveland)	1,949.80	1,464.51
Buckeye P. L. (Lima, etc.)	1,138,273.04	1,063,204.74
Indiana P. L.	360,294.63	387,189.39
Cumberland P. L.	96,581.63	129,255.52
Southern P. L.	34,921.19	27,773.80
N. Y. Transit	182,392.43	189,599.54
Northern P. L.	69,933.33	78,349.64
Tide Water P. L.	164,443.71	359,965.20
Pure Oil	295,355.25	69,124.29
Indian Ref.	269,600.16	280,245.79
Bradford Tran.	356,796.37	373,859.08
Tuscarora Oil	342,813.68	369,139.62
East Gulf Oil		5,397.60
Total	4,399,141.89	4,413,056.40
Daily average	146,638.06	143,001.82

Gross Stocks

The gross stocks held by various pipe lines in the oil producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky and Indiana at the close of November and December:

	Nov., '30	Dec., '30
Nat. Transit	823,883.04	796,609.10
S. W. Pa. P. L.	432,055.87	444,175.42
Eureka P. L.	1,501,400.77	1,500,225.43
Buckeye P. L. (Macksburg)	547,588.35	643,952.78
Buckeye P. L. (Cleveland)	43,726.09	37,246.45
Buckeye P. L. (Lima, etc.)	4,622,221.25	4,424,779.87
Indiana P. L.	748,856.72	587,459.89
Cumberland P. L.	567,723.01	592,631.01
Southern P. L.	215,451.62	292,250.09
N. Y. Transit	136,550.60	140,232.95
Northern P. L.	508,980.54	515,798.08
Tidewater P. L.	976,136.74	1,049,178.91
Pure Oil	332,491.81	467,768.78
Indian Ref.	71,646.44	55,677.44
Tuscarora	16,477.13	15,326.72
Bradford Trans.	216,140.95	183,944.67
East Gulf		4,695.81
Total	11,851,380.92	11,751,952.41
Decrease	586,174.95	99,428.51

Grades of Oil

The following table shows the amount of the different grades of oil held by the eastern pipe lines at the close of November and December, showing gross stocks of the above fields:

	Nov., '30	Dec., '30
Pennsylvania	3,970,186.37	3,950,817.59
Lima	752,285.03	757,684.69
Kentucky	626,748.00	643,036.25
Mid-Continent	6,155,312.11	5,903,435.98
Illinois	24,171.92	40,169.01
Michigan	322,677.49	456,808.89
Total	11,851,380.92	11,751,952.41

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1927	1928	1929	1930
Jan.	56,209	52,904	51,749	75,907
Feb.	61,298	57,002	51,833	79,256
Mar.	63,247	57,485	54,252	76,688
April	60,927	56,812	58,444	84,536
May	60,284	62,067	59,902	80,548
June	62,757	58,230	58,833	75,430
July	58,674	57,144	66,087	68,921
Aug.	60,870	57,745	66,087	54,291
Sept.	60,285	53,487	67,315	56,595
Oct.	147,080	58,100	76,093	58,179
Nov.	57,275	53,865	74,831	52,332
Dec.	53,089	52,025	74,561	53,999

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four yeras:

	1927	1928	1929	1930
Jan.	141,227	146,465	166,721	217,623
Feb.	138,534	167,368	159,387	224,355
Mar.	133,777	158,883	161,474	228,846
April	140,227	172,935	169,737	241,845
May	144,594	180,559	184,281	248,383
June	149,772	188,024	185,404	234,401
July	161,850	189,470	194,763	207,094
Aug.	188,653	192,853	184,946	205,506
Sept.	144,213	194,138	201,214	193,999
Oct.	147,036	176,000	191,367	157,675
Nov.	150,975	176,898	202,743	146,653
Dec.	144,504	173,573	186,257	142,001

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines at the close of each month for the past three years:

	1928	1929	1930
Jan.	12,276,710	7,596,564	12,220,045
Feb.	12,180,419	8,738,835	12,991,561
Mar.	12,239,735	9,002,068	13,247,217
April	11,740,135	8,978,172	13,333,961
May	11,602,468	8,903,560	13,052,953
June	11,287,678	8,921,275	13,396,855
July	10,819,331	9,211,595	12,368,562
Aug.	10,236,743	9,440,643	13,047,051
Sept.	9,660,910	9,443,067	12,812,018
Oct.	9,229,709	9,441,101	12,437,555
Nov.	8,366,553	9,868,538	11,851,380
Dec.	7,539,555	11,263,953	11,751,952

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, Dec. 31	2,097,629.16
Runs from wells	429,069.48
Other receipts	212,050.65
Regular deliveries	353,568.34
Other deliveries	232,421.81

The amount of Illinois oil run by the Tidewater Pipe Co. in December was 27,349.30 bbls. Deliveries were 10,151.21 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

1930—	Runs	Deliveries
December	239,399.95	363,719.55
1929—		
February	517,320.17	503,387.70
March	728,319.67	586,049.60
April	515,374.27	654,297.96
May	608,981.60	673,813.83
June	568,454.70	818,848.97
July	611,196.79	828,159.44
August	625,251.99	746,425.06
September	582,457.66	669,947.72
October	622,302.83	558,558.68
November	565,108.75	427,064.62
December	548,924.41	489,368.81
1930—		
January	543,387.95	498,293.93
February	548,416.44	414,536.59
March	631,944.49	469,119.53
April	530,074.22	509,304.60
May	605,147.37	504,069.84
June	572,622.57	468,658.51
July	604,529.54	388,454.47
August	594,642.12	375,742.43
September	457,001.11	371,491.63
October	478,442.12	320,688.72
November	239,399.95	363,719.55

Tidewater Pipe Co., Ltd., also delivered in December 95,661.64 bbls. Oklahoma oil.

AVERAGE DAILY RECEIPTS OF CALIFORNIA CRUDE AND REFINED OIL AT ATLANTIC AND GULF PORTS

Average barrels per day in 1930—	ATLANTIC PORTS: Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS: Galveston	New Orleans, Baton Rouge	Port Arthur, Sabine Pass	Tampa	Total	Total all ports
January	18,484	1,936	34,257	22,323	9,516	86,516	.....	.....	.....	.....	2,258	88,774
February	7,678	.....	24,714	14,321	5,000	51,714	.....	.....	.....	.....	2,607	54,321
March	10,548	3,065	28,871	8,774	22,484	73,742	.....	.....	.....	.....	805	74,548
April	7,767	.....	14,369	11,600	7,432	41,167	.....	.....	.....	.....	7,600	48,767
May	5,194	8,451	28,161	9,484	2,774	54,064	.....	.....	.....	.....	774	54,838
June	8,200	.....	33,933	20,767	2,333	65,333	.....	.....	.....	.....	2,400	67,733
July	17,355	7,774	43,419	23,839	6,452	98,839	.....	.....	.....	.....	4,645	103,484
August	7,418	8,742	38,968	21,226	5,258	81,613	.....	.....	.....	.....	97	81,710
September	6,300	6,400	25,600	13,400	9,567	61,267	.....	.....	.....	.....	2,433	63,700
October	2,516	3,065	27,258	16,419	4,903	54,161	.....	.....	.....	.....	5,355	59,516
November	8,367	6,233	33,800	17,733	4,600	70,733	.....	.....	.....	.....	4,800	75,533
December	5,516	4,323	30,645	9,678	3,580	53,742	.....	.....	.....	.....	4,645	58,387

AVERAGE DAILY IMPORTS OF CRUDE AND REFINED OIL AT PRINCIPAL UNITED STATES PORTS

Average barrels per day in 1930—	ATLANTIC PORTS: Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS: Galveston	New Orleans, Baton Rouge	Port Arthur, Sabine Pass	Tampa	Total	Total all ports
January	21,161	10,678	134,581	38,677	43,806	248,903	4,322	6,453	.....	548	11,323	260,225
February	24,500	14,714	147,357	36,036	39,786	262,933	2,821	11,072	3,500	1,964	19,357	281,750
March	28,356	4,839	151,806	36,645	34,903	255,548	4,323	11,645	839	2,419	19,226	274,774
April	31,400	8,933	123,500	40,433	19,434	223,700	.....	7,400	2,433	4,167	14,000	237,700
May	24,129	9,322	174,194	39,291	28,226	275,161	8,194	11,548	2,935	1,322	24,000	299,161
June	51,533	15,667	121,067	45,033	25,033	258,333	4,413	17,367	2,167	1,333	25,300	283,633
July	42,097	9,548	154,968	37,935	36,032	280,580	5,678	9,161	2,097	2,387	19,323	299,903
August	39,032	4,484	145,613	33,355	25,097	247,581	5,419	9,323	8,548	1,000	23,290	270,871
September	38,867	8,533	150,933	34,500	25,567	258,400	6,433	12,234	.....	3,800	22,467	280,867
October	19,839	11,742	146,194	35,355	26,967	240,097	6,065	7,067	2,774	2,545	18,451	258,548
November	39,633	35,900	124,633	36,467	24,667	261,300	2,467	7,366	.....	1,767	11,600	272,900
December	21,419	14,033	122,774	32,839	33,774	224,839	6,290	10,613	2,097	290	19,290	244,129

GROSS PRODUCTION OF CRUDE OIL IN THE UNITED STATES FOR 12 MONTHS (Revised)

(In Barrels of 42 gallons)

1930—		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mts.	Eastern	Total
January:	Month	21,983,242	20,802,984	25,284,352	8,273,197	1,817,685	1,780,751	2,151,090	4,113,000	81,206,301
	Daily average	709,137	671,064	815,624	105,587	58,635	57,444	69,390	132,678	2,619,558
February:	Month	20,855,660	17,977,624	23,314,637	2,965,704	1,608,376	1,738,250	2,027,984	3,963,000	74,481,235
	Daily average	745,916	642,058	832,669	105,918	57,442	62,080	72,428	141,536	2,660,044
March:	Month	19,699,979	19,115,406	25,503,082	3,504,395	1,817,871	1,942,938	2,337,028	4,223,000	78,143,699
	Daily average	635,483	616,626	822,679	113,045	58,641	62,675	75,388	136,161	2,520,764
April:	Month	18,768,743	19,541,310	24,799,763	3,734,253	1,724,460	1,909,552	2,334,810	4,257,000	77,069,891
	Daily average	625,525	651,377	826,659	124,475	57,482	63,652	77,827	141,900	2,568,996
May:	Month	19,044,444	20,547,503	26,219,488	3,978,395	1,659,895	1,907,842	2,565,219	4,414,000	80,376,776
	Daily average	614,337	664,113	845,786	128,335	53,545	61,543	82,749	142,387	2,593,799
June:	Month	18,020,795	19,754,700	25,643,705	3,765,060	1,704,060	1,925,621	2,519,190	4,288,000	77,621,131
	Daily average	600,693	658,490	854,790	125,502	56,802	64,187	83,973	142,933	2,587,371
July:	Month	18,802,024	18,032,514	25,973,521	3,541,409	1,713,680	2,079,769	3,275,894	3,830,000	77,248,811
	Daily average	606,517	581,694	837,856	114,239	55,280	67,089	105,674	122,548	2,491,897
August:	Month	18,770,466	17,162,034	25,069,598	3,491,530	1,700,102	2,151,120	3,193,341	3,417,000	74,955,191
	Daily average	605,499	553,614	808,696	112,630	54,842	69,391	103,011	110,226	2,417,909
September:	Month	17,984,306	16,509,120	23,111,822	3,405,510	1,583,280	2,008,060	3,239,010	3,396,000	71,237,108
	Daily average	599,477	550,304	770,394	113,517	52,776	66,935	107,967	113,200	2,374,570
October:	Month	18,244,052	16,632,523	23,626,553	3,571,913	1,636,552	3,142,885	3,225,550	3,627,000	72,707,029
	Daily average	588,518	536,533	762,147	115,223	52,792	69,125	104,050	117,000	2,345,383
November:	Month	18,109,459	14,941,770	22,035,222	3,459,330	1,557,870	3,136,948	2,957,100	3,222,000	68,419,699
	Daily average	603,648	493,059	734,507	115,311	51,929	71,231	98,570	107,400	2,280,656
December:	Month	17,786,728	15,057,103	21,810,359	3,432,661	1,590,951	2,157,534	3,118,663	3,328,000	68,281,999
	Daily average	573,765	485,713	703,560	110,731	51,321	69,598	100,602	107,355	2,202,645
	Total 12 months	228,099,299	216,114,591	292,392,102	42,122,347	20,114,782	23,881,270	32,944,879	46,078,000	901,748,870
	Daily average	624,931	592,095	801,074	115,406	55,109	65,428	90,260	126,241	2,470,545